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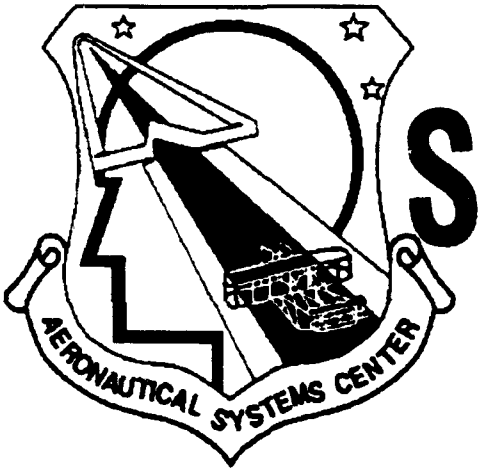
PROGRAM DEVELOPMENT PROCESS GUIDE

PRE-MILESTONE I



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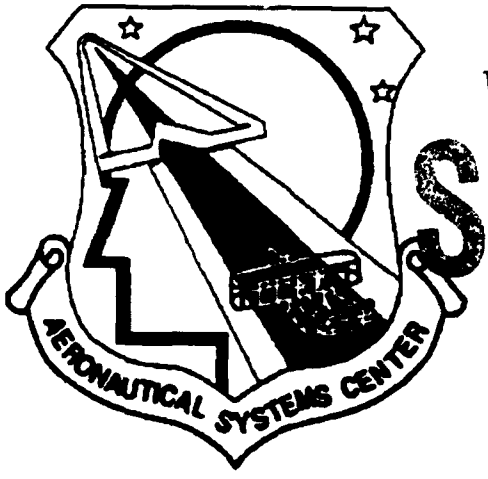

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This technical report has been reviewed and is approved for publication.

JAMES W. MARKS, Lt. Col, USAF
Chief, Process Development Division
Program Development SPO

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13. ABSTRACT *(Maximum 200 words)*

The Process Guide is written to help Aeronautical System Center and all Air Force Material Command personnel and organizations to understand the early acquisition process and to aid in developing new executable projects prior to the program start decision (Milestone I).

The objective of this guide is to give personnel working on new acquisition projects adequate knowledge and information to be able to obtain a Milestone I approval and have an executable program. The information is prepared so personnel at Acquisition Professional Development Program Level I can understand the process and complete the task.

14. SUBJECT TERMS
Acquisition Process, Pre-Milestone I, Phase 0, Pre-Concept Exploration, Concept Exploration, Pre-Milestone 0, Early Acquisition Process, New Start Program, Pre-Program Start.

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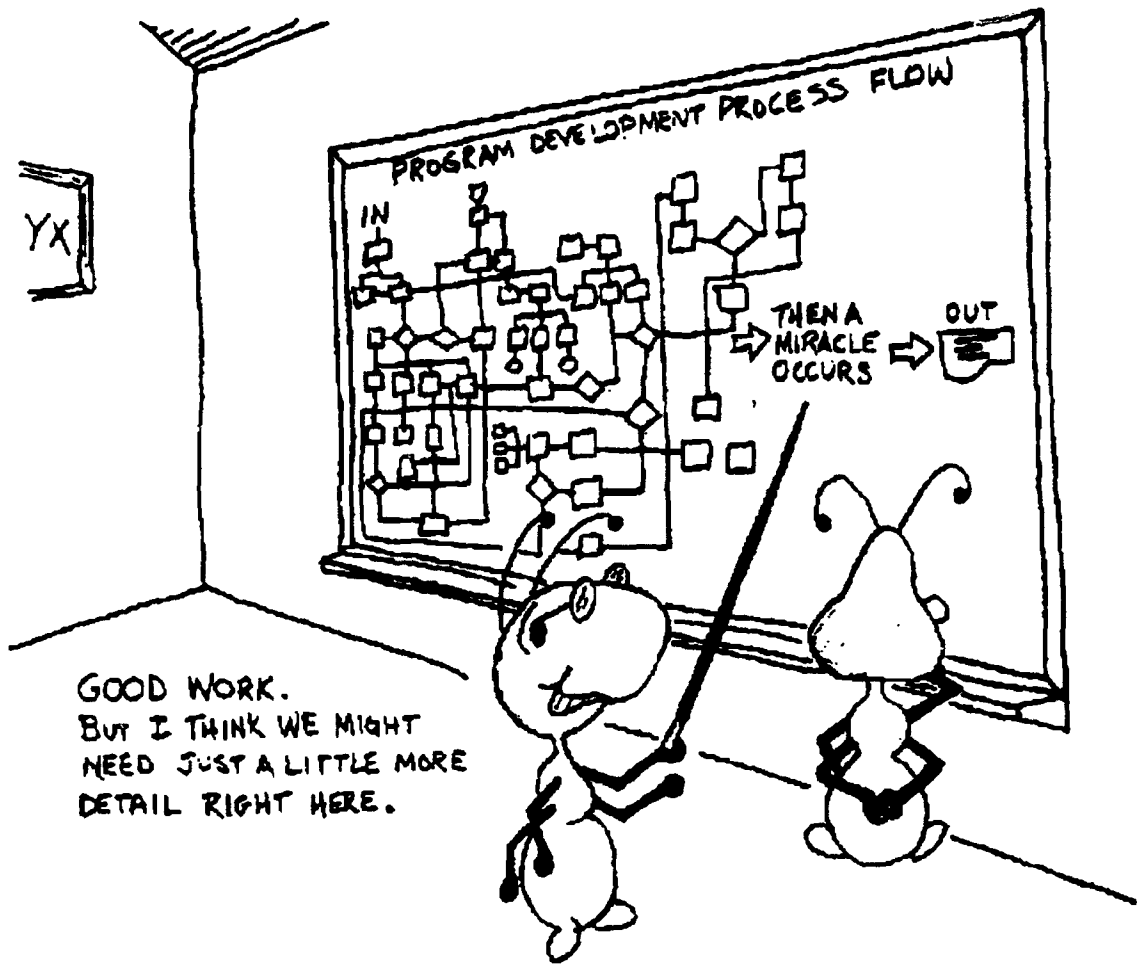
PDP Guide Book

Foreword



The above cartoon has been around for some time and we often chuckle at it. But, unfortunately, some program managers hope for this "miracle" to happen when they realize their program - especially in the early phases of the program - has not been developed properly. This Process Guide will alleviate the need for the program manager to hope this "miracle" is around if he ever needs it.

The Process Guide is written to help Aeronautical Systems Center (ASC) and all Air Force Materiel Command (AFMC) personnel and organizations understand the early acquisition process and aid in developing new, executable projects prior to the program start decision (Milestone [MS] I).

OBJECTIVE

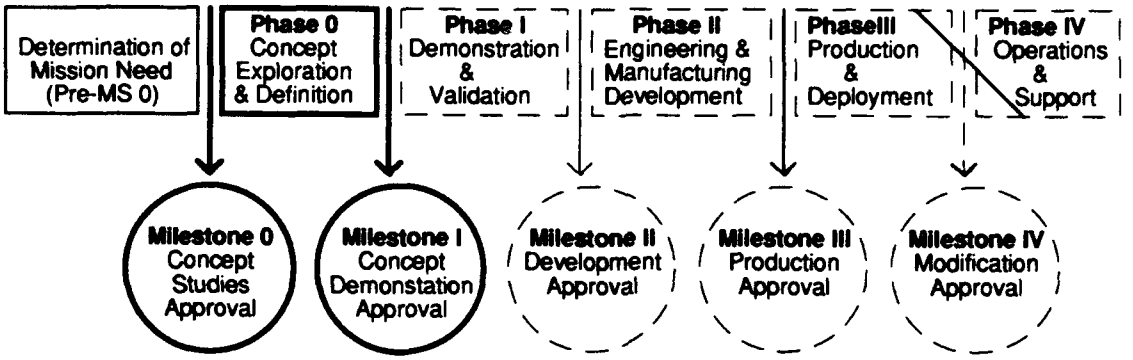
The objective of this guide is to give personnel working on new acquisition projects adequate knowledge and information to be able to obtain a Milestone I approval and have an executable program. The

information is prepared so personnel at the Acquisition Professional Development Program (APDP) Level I can understand the process and complete the task.

BACKGROUND

In the past, new acquisition projects often times were started in the XR development planning communities that specialize in studies and analyses. The XRs would interface with and support the operating command during the requirements definition process by defining the project concept through trade-off studies and analyses. They also provided acquisition strategies and system program office (SPO) cadres. However, the XRs lacked adequate expertise in acquisition strategy, scheduling and budgeting, etc., to define the project. They also lacked a core of experience to apply consistent acquisition philosophy. In early 1992, the then ASC Commander made some changes at the Aeronautical Systems Center to accommodate downsizing Air Force Materiel Command. As he resized and reorganized SPOs, he revised the role of ASC/XR to concentrate on studies and analyses and technical planning integrated product teams (TPIPTs). He also established a "new starts" SPO to create expertise in Phase 0, the Concept Exploration and Definition (CE&D) phase, for new acquisition projects. This "new starts" organization, now formally called the Program Development SPO, ASC/YX, was founded in June 1992, by the ASC commander. The main focus for this new organization is to establish a core of acquisition experts in the Pre-MS I (pre-program start) phase of a program by having this team of experts working solely on this phase of new projects.

Acquisition Milestones and Phases



WHAT THE ORGANIZATION HAS DONE

ASC/YX, subsequent to a few false starts and growing pains, has put together a set of tools that will help anyone trying to initiate a new project or a current program going through the Phase 0, CE&D. Personnel in YX researched the current steps in the process to get a project from the Pre-MS 0 through the MS I decision. After the research, they laid out the many steps in the process in an Integrated Flow Chart (IFC). Then after even more research, the SPO members prepared a "data sheet" for each task on the IFC. You will see all these items, plus many more, in this Process Guide. The YX members used the DOD Directive 5000.1 series publications as their main guidance in doing their research. They also researched the statutes, regulations, directives, pamphlets, guides and many other documents which are listed in each data sheet. They talked to respective points of contact from many offices in the Pentagon, the operating commands, XRs, labs, functional home offices, schools, staff offices, other SPOs and the "greybeards" in YX to gather the information contained in this guide. Use of the data in this guide should afford anyone managing or working on a project the proper guidance to develop an executable program.

ACKNOWLEDGMENTS

Many people played an important part in preparing this Process Guide. The list includes the major developers, producers and writers of the process.

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OTHER SUPPORT

There was also a large number of people who provided advice, critique, expert opinion, consulting and support services throughout the development of the Process Guide.

QUESTIONS OR COMMENTS

If you have any questions concerning this process or Process Guide, please call ASC/YXDP, Program Development Process Office, (DSN 78) 51847. If one of our research experts doesn't know the answer, we will find the answer or put you in contact with the proper functional/operational office.

We hope this Process Guide will be useful to you in starting or developing your project/program. We are looking for ways to make it better and more useful. We would appreciate it if you send us any comments, suggestions, lessons learned or best practices we could add to the guide that would help others in doing their job. We have included a form at Appendix D for your use.

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Chapter 1

How to Use this Guide

THIS PROCESS GUIDE BOOK

WHO CAN USE?

We prepared the information and guidance based on an Acquisition Category (ACAT) I project/program and knew the information would not fit everyone. Managers of non-ACAT I projects will have to tailor this information to fit the individual project. (Suggested tailoring is discussed below.)

LAYOUT/ORGANIZATION

This guide is organized in a top-down manner. *Chapter 2* gives a macro view, in big task fashion, of the overall project development process through Milestone I. It also includes a narrative of that big task flow. Chapters 3 and 4 take those six big blocks and give further breakdowns of the integrated flow and an associated narrative for each. In Appendix D to this Process Guide you will find detailed task descriptions -- one for each task on the detailed flow charts. The detailed task description numbers are contained in parentheses at the end of each task narrative. Top and middle managers will probably be interested in the macro flow information while the Project/Program manager and his team of "worker bees" will gain valuable information from the detailed flow chart and task descriptions.

We have also included in the Appendix other helpful information such as definitions, acronyms, an index, and cross references. There is also a checklist which gives an indentured listing of how the Pre-Milestone I process tasks should take place. Lastly, we included a form for your use if you have any lessons learned or best practices you would like to contribute, see any incorrect information or see any other way which would be helpful to others and also improve this guide.

REFERENCES

The documents listed in the data sheets as a requirement document or a referenced document can be found in a library located in ASC/YX. Each Data Sheet has a Lessons Learned category. We found some of those lessons learned in the Automated Lessons Learned Capture and Retrieval System (ALLCARS) which is maintained by ASC/CYML (DSN 785-3454).

TAILORING THE PROCESS

As stated above, some of this information may have to be tailored for non-ACAT I projects/programs. The flow charts in this guide show only what should be done and the relationship between the tasks. It does not show the specific relationship in time between tasks. The project/program manager (PM) must decide what the required tasks are and in what order they must be performed. The following steps can be followed to aid the tailoring process.

1. Communicate the PM's goals and requirements for success. It is critical each team member understands the requirements for executing a project/program.

2. Determine project/program requirements. Review all project/program documentation prepared to date for this knowledge base.

3. Assign requirements to the process. This step determines how much tailoring the process requires.

4. Eliminate any unused portions of the process which are not needed.

5. Add any missing tasks and verify the required processes.

6. Generate project/program specific process documents. The PM and team use the tailored process to brief project/program personnel.

7. Prepare a detailed task flow. Divide the process into segments to simplify the plan for completing the project/program. Use a network scheduling tool to aid in generating the duration and logical relationships between tasks.

8. Generate a plan for conducting the project/program. Use the network scheduling tools to build the network of tasks for each portion of the project/program.

*These steps were adapted from Texas Instruments Defense Systems & Electronics Group's Integrated Product Development Guide.

Chapter 2

Overview of the Pre-Milestone I Acquisition Process

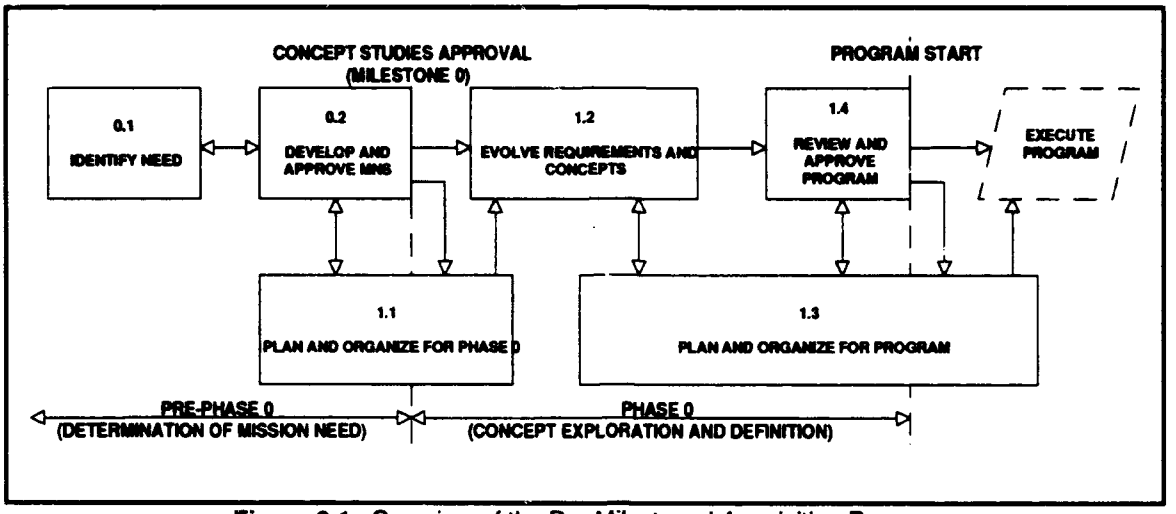

Figure 2-1. Overview of the Pre-Milestone I Acquisition Process

Summary

The life span of a new acquisition program takes it all the way from determining a mission need to operation, support and disposal of the system after it has been produced and deployed. The five phases of the acquisition process provide a basis for comprehensive management and progressive decision making associated with military systems.

The Program Development Process provides a detailed flow (via narratives, data flow diagrams and data sheets) to trace a new project from the identification of a need or deficiency in Pre-Phase 0, through the development of alternative approaches in Phase 0, to the go-ahead decision at MS 1. During this time period, the mission need must be validated and the requirements generated. Studies of alternative material concepts are conducted to identify the most promising potential solution(s) to the validated user needs. The study results are evaluated, including the acquisition strategy and proposed concept(s) (with cost, schedule, risk and performance objectives) in light of projected affordability constraints.

The Pre-Milestone (MS) 0 activities can result in the development of new mission needs. The activities in this phase include all the events that must occur and documents that must be developed, coordinated and approved and/or validated prior to a MS 0 approval. The issuance of the Acquisition Decision Memorandum (ADM) by the appropriate Milestone Decision Authority (MDA) signifies a MS 0 approval and authorizes the project to go ahead for Phase 0, Concept Exploration and Definition (CE&D).

The Pre-Phase 0 activities include the Operating Command's application of a strategy-to-task framework in assessing its missions and identifying deficiencies. Those mission deficiencies or needs that cannot be satisfied by non-material solutions become the basis for the Mission Need Statement (MNS). The MNS is drafted by the Operating Command, submitted to USAF/XOR and approved at the Air Force Chief of Staff (CSAF) level. For acquisition category (ACAT) I efforts, the Joint Requirements Oversight Council (JROC) validates the MNS; for ACAT II through IV, the Operating Command will validate the MNS.

As soon as the Operating Command has developed a draft MNS and has started the review cycle, acquisition planning activities will be initiated to identify the desired participants, strategy, organization,

structure and relationships, and the associated costs and manpower required for Phase 0 CE&D. The planning activities flow back and forth between the development and approval of the MNS and those activities that are necessary to plan and organize for Phase 0, until such time as the MNS has been approved and an ADM has been issued by the MDA, authorizing the project to proceed into Phase 0.

Successful completion of Phase 0 will result in the issuance of a Program Management Directive (PMD) which authorizes program start and subsequent program execution. The events and documentation that take place in CE&D trace back to the original need or deficiency in the MNS. The approved and validated MNS and the Phase 0 plans, are the basis for all activities that will occur. During this period, studies will be conducted that explore concept alternatives. The potential for Non-Development Items (NDI) and cooperative opportunities will be investigated, an alternative systems review will be conducted, and the project data base will be updated. After an assessment of the technology needs has been accomplished, the operations requirements will be developed and documented in a draft Operational Requirements Document (ORD).

Once preferred alternatives are defined, a comparative analysis is developed in preparation for a Cost and Operational Effectiveness Analysis (COEA) and a Program Alternatives Assessment (PAA) will be conducted. Following this, the preferred alternative(s) will be selected and a cost estimate updated. The program Objective Memorandum / Budget Estimate Submission (POM/BES) will be input and subsequently updated.

The preferred alternatives will include further definition, along with appropriate NDI and cooperative opportunities. The Cost Analysis Requirement Document (CARD) will be developed, the data base updated, and the preparation for the MS 1 program cost estimate will commence. At this point in the acquisition process, the plans for organizing the upcoming program are defined. A system threat assessment report (STAR), program baselines, and testing requirements are developed. The acquisition strategy process is conducted and the contracting activities are taking place in preparation for Phase 1.

The periodic approval activities consist of a series of reviews that are to provide the MS 1 approval that will authorize execution of a formal acquisition program. This includes validation of the STAR and review and approval of the acquisition strategy and contracting activity. High level reviews and approvals for the program follow; [i.e., Air Force Systems Acquisition Review Council (AFSARC), Defense Acquisition Board (DAB) and Joint Requirements Oversight Council (JROC)]. Following a successful DAB review, a funded Program Management Directive (PMD) will transfer programmatic responsibilities to the Implementing Command (i.e. major command, field, and test organizations) for systems development, modification, or acquisition.

This document has been broken into the following sections within Chapters 3 and 4.

Task 0 - Pre-Milestone 0

Task 0.1 - Identify Need

Task 0.2 - Develop and Approve the Mission Need Statement (MNS)

Task 1 - Concept Exploration and Definition (Phase 0)

Task 1.1 - Plan and Organize for Phase 0

Task 1.2 - Evolve Requirements and Concepts

Task 1.3 - Plan and Organize for a Program

Task 1.4 - Review and Approve a Program

Chapter 3

Pre-Milestone 0 Activities

Task 0.1

Identify Need

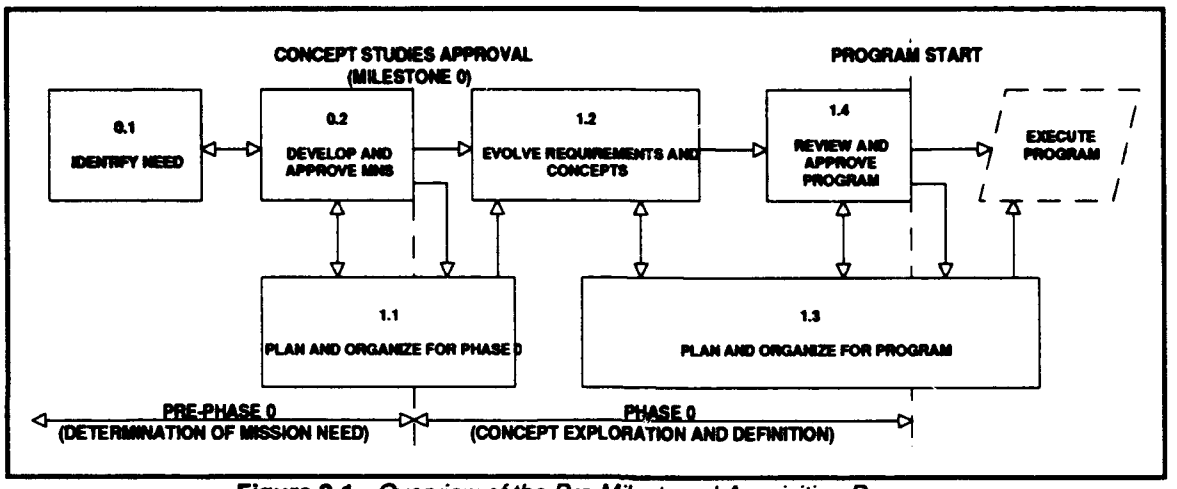

Figure 3-1. *Overview of the Pre-Milestone I Acquisition Process*

Summary

The Operating Major Commands (MAJCOMs) (i.e., ACC, AMC, AFSOC, and AETC) and other Field Operating Agencies (FOAs) conduct periodic assessments of their roles and overall abilities to support the US Military Strategy. The purpose of this task is to define (and/or refine) their specific roles and to identify mission-level deficiencies, shortfalls or opportunities that are then referenced in the context of validated mission needs (see Task 0.2). This is the initial step of the overall defense acquisition process and is typically a MAJCOM-driven activity.

Preparation for Task 0.1 begins with the issuance of the President's National Security Strategy. This is based on input from the National Security Council and provides guidance on national security interests and strategies. Key developments are the National Military Strategy Document, Defense Planning Guidance (DPG) and Joint Strategic Capabilities Plan. As shown in Fig 3-1, this flows directly into Task 0.2 (Develop and Approve Mission Need Statement (MNS)).

Direction and guidance for the MAJCOMs and FOAs are most often reflected in the Air Force Planning Guide. The Secretary of the Air Force (SAF) and the Chief of Staff of the Air Force (CSAF) provide this executive guidance, addressing strategic environments, national security objectives, defense policy, national military objectives and planning priorities. It reflects a summary of the executive guidance, fiscally constrained force structure levels and objective assessments of force capabilities.

The more detailed tasks outlined in Fig 3-2 only briefly describe all the processes referred to in the Task 0.1 data flow chart. This figure nominally indicates the sequence in which tasks (indicated by the chart task number) should typically occur. Consult the pertinent data sheet in Appendix D for specific details of any particular task. Data sheet task number(s) are identified in parentheses at the end of each paragraph.

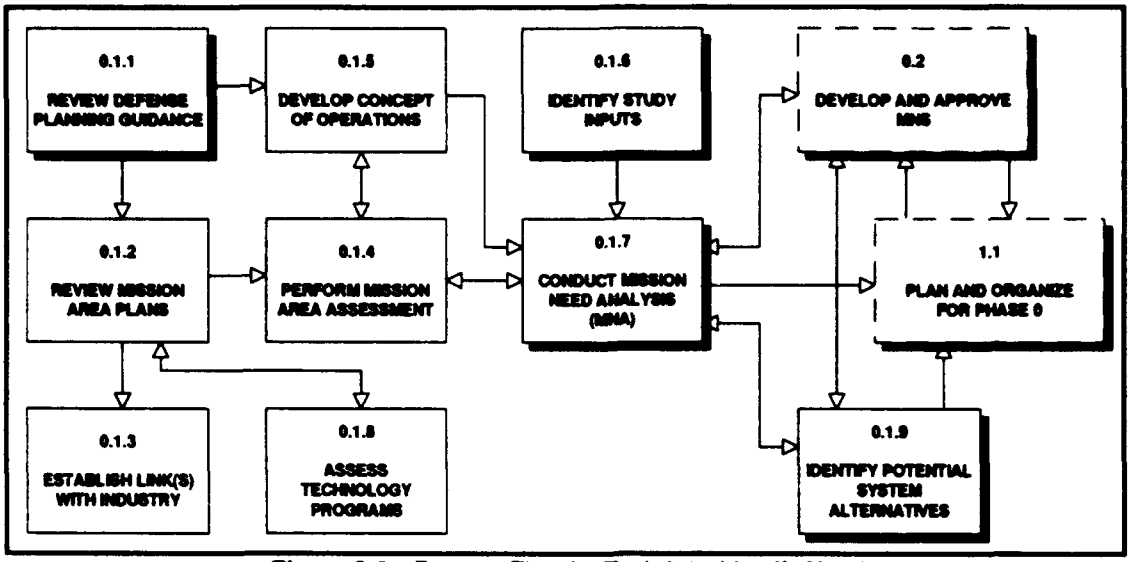

Figure 3-2. *Process Flow for Task 0.1 - Identify Need*

Tasks

Task 0.1.1 - Review Defense Planning Guidance

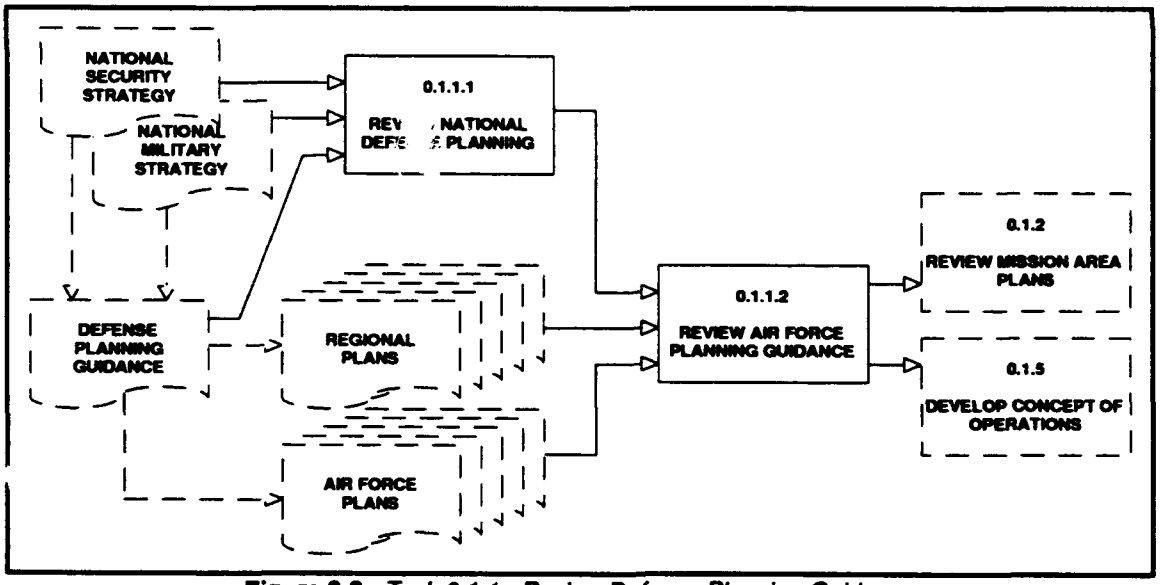

Figure 3-3. *Task 0.1.1 - Review Defense Planning Guidance*

The overall objective is to verify that the roles and missions being assigned to the AF are current and consistent with the latest military guidance. One activity will be to review the top-down guidance (i.e., National Security Strategy, National Military Strategy, Defense and AF Planning Guides, Regional Plans,

and AF Plans) that reflects the national objectives and strategies. This will require comparisons with existing directions and identifying adjustments as necessary to stay on track. Once completed, this "blessed" guidance is passed to the individual Operating Commands in the form of their Roles and Missions.

Task 0.1.2 - Review Mission Area Plans

This is a biennial activity, led by the Operating Commands, that includes an interim (or annual) update. The activity is to review the JCS, SAF and USAF's most current guidance on assigned Roles & Missions and compare them with that contained in the previous Operating Commands' Mission Area Development Plan (MADP). The comparison should include an assessment of the MADP's activities, progress and direction, followed by any revisions or updates that are based on the most current Roles & Missions guidance. The overall review is conducted with participation from the pertinent mission and functional Technical Planning Integrated Product Teams (TPIPTs). This will maintain links to the supporting elements across AFMC and will ensure the lines of communication are kept open with the latest guidance available. The resulting status of the Operating Commands' missions and supporting activities are then made available to the Mission Area Assessments task (Task 0.1.4). This feedback would also include an interchange with the supporting activities in industry (Task 0.1.3) and the Laboratories (Task 0.1.8).

Task 0.1.3 - Establish Link(s) with Industry

As part of the effort to review the Operating Commands' MADPs, contacts with Industry are established in order to review their progress on activities supporting developments in the SPDs and Labs technology areas. This is to ensure that they are current and coordinated with the latest Roles & Missions updates to the MADP. This also provides an opportunity for the government team to have an interchange with industry on their Independent Research And Development (IRAD) and Contractor Research and Development (CRAD) efforts.

Task 0.1.4 - Perform Mission Area Assessment

The MAA (Mission Area Assessment) provides the Operating Commands with feedback on the tasks that are necessary to satisfy their assigned Roles & Missions. This involves a breakdown of the Roles & Missions into several regional scenarios that are outlined in the DPG and that are representative of the support expected by the theater commanders. The elements (or components) of these scenarios are then defined in terms of the tasks that are necessary to accomplish regional objectives (Task 0.1.7). Key references are the MADP (Mission Area Development Plan) from the previous cycle, the latest Roles & Missions and their time frames (Task 0.1.2), and the Operating Commands Concept of Operations (CONOPS) (Task 0.1.5). Refinements to the CONOPS are also examined. This assessment provides the Operating Command a basis for defining command-wide areas of emphasis and helps focus the follow-on activities for the Mission Needs Analyses (MNSs) (Task 0.1.5, 0.1.6, 0.1.7).

Task 0.1.5 - Develop Concept of Operations

The Concept of Operations (CONOPS) of the Operational Command addresses their operational structure, capabilities, employment, basing and interoperability in applying the fielded weapon systems in assigned Roles & Missions. Important pieces of the CONOPS are the groundrules and assumptions that were used in the initial determination. It is also important to reference updated key documents such as existing theater war planning documents and Defense Planning Guides (Task 0.1.1). Established CONOPS are periodically reviewed for their application to the latest Roles & Missions assignments (Tasks 0.1.4, 0.1.7). Efforts should be made to include aspects of joint operations as well as individual Service taskings (Tasks 0.1.4, 0.1.7).

Task 0.1.6 - Identify Study Inputs

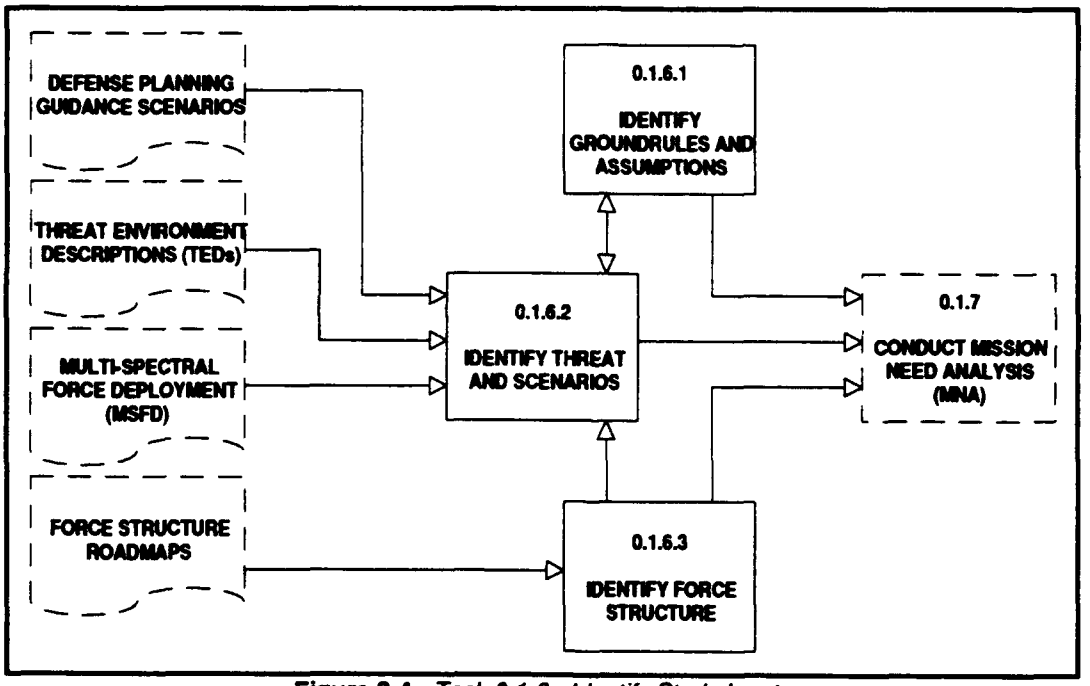

Figure 3-4. *Task 0.1.6 - Identify Study Inputs*

The purpose is to develop a common framework for the Mission Need Analysis (MNA) (Task 0.1.7) and other related, supporting analyses. This is typically achieved by reviewing the previous cycle needs analysis and updating with the current status of information. Key areas of focus are the assumptions, groundrules, scenarios, force structure and threats. The force structure should include both the current inventory fleet and account for any programmed mods/upgrades/additions through the time frame identified for the MNA. An important consideration in developing the study inputs is to ensure coordination among all of the potential players in the MNA. Documentation becomes one of the primary elements of the analysis database (Task 0.1.7).

Task 0.1.7 - Conduct Mission Need Analysis (MNA)

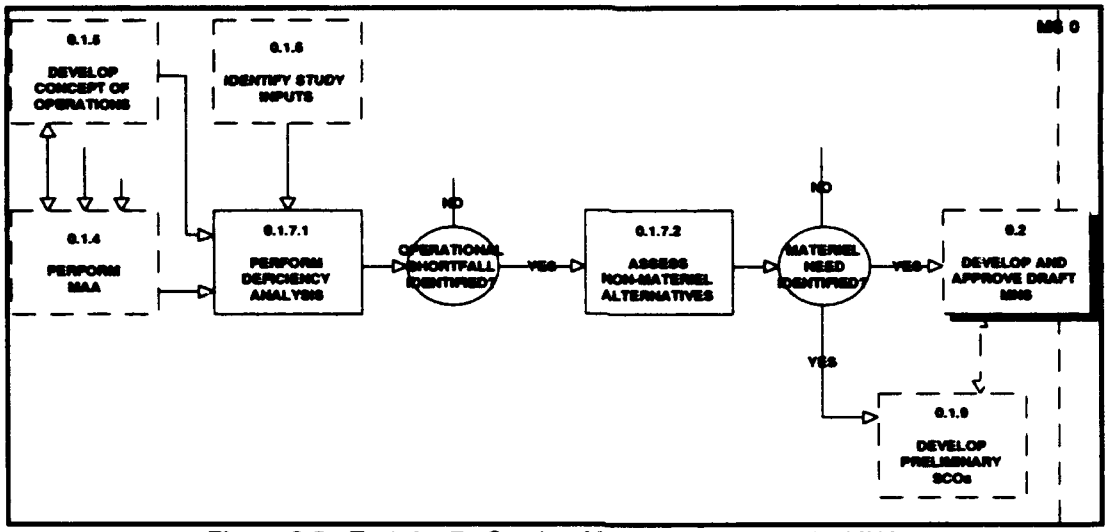

Figure 3-5. *Task 0.1.7 - Conduct Mission Need Analysis (MNA)*

The setup and execution of the Mission Need Analysis (MNA), a "task-to-need" portion of the process, is the cornerstone of the Operating Command's list of mission needs. The focus is on assessing the capability to accomplish identified tasks in a defined set of conditions (i.e., force structure, environment, geography, etc.) against a specified threat. Through this analysis, the force shortfalls, mission *deficiencies, and capability opportunities* are captured in formal mission need statements (MNSs) to represent the materiel needs of the Operating Command. During the process, nonmateriel approaches are also considered (e.g., changes to doctrine, tactics, organization, etc.) as a more efficient and cost-effective means of satisfying the needs (Tasks 0.1.4, 0.1.9, 0.2).

Task 0.1.8 - Assess Technology Programs

A broad overview of the technology base is conducted as the Operating Commands review their MADPs in preparation for the biennial MAAs. This overview is an interactive process with the MADP review. It covers the current and planned development activities within the Laboratories that support objectives of the supporting commands and the SPDs. The major thrusts of the S&T area (both Labs & DoD) and the critical technologies from DoD are evaluated for applicability against the Roles & Missions assigned to the Operating Command (Task 0.1.4).

Task 0.1.9 - Identify Potential System Alternatives

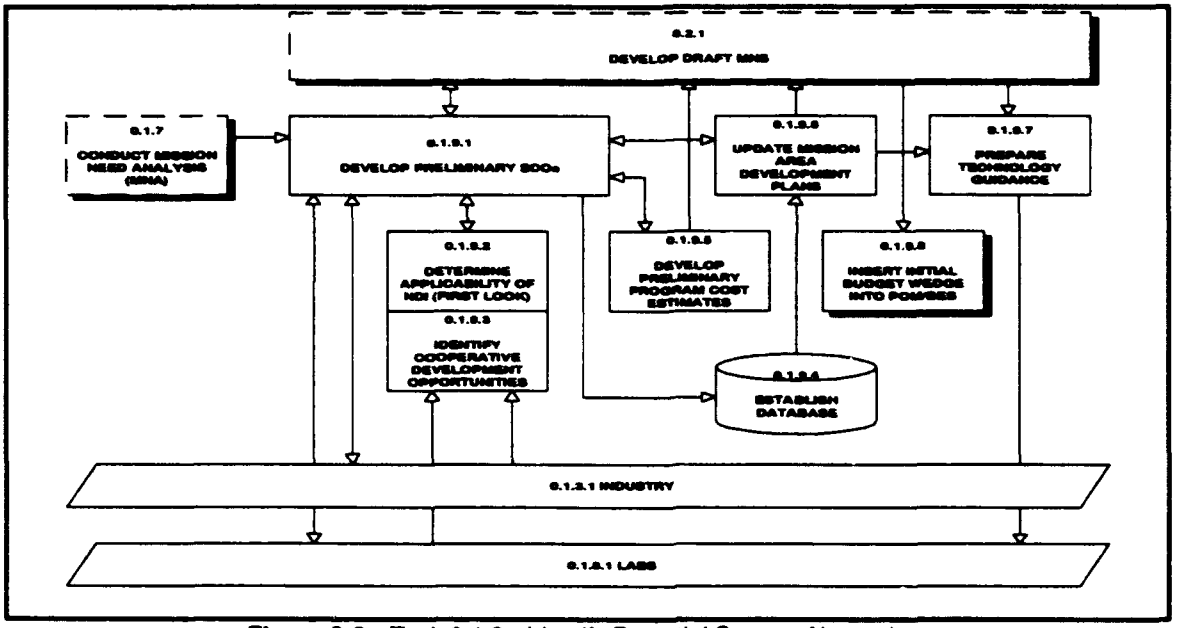

Figure 3-6. *Task 0.1.9 - Identify Potential System Alternatives*

The main objective of this activitiy is to develop a strong analytical basis for the evolving material needs of the Operating Command. These efforts are to provide preliminary system concept options (PSCOs) to support the draft Mission Need Statement (MNS) being put together by the Operating Command (0.1.9.1)). This is usually an interactive and formative stage that identifies the most important functional areas to be covered in the draft MNS (0.2.1). Contacts or interfaces are established with the AF & other Laboratories and with industry to assist in development of the PSCOs, with the concepts being developed through in-house (government) and contracted activities. The potential for application of Non-Developmental Items (NDI) (0.1.9.2) and Cooperative Opportunities (COD) (0.1.9.3) are investigated (NDI is synonymous with the Commercial Off-The-Shelf. or COTS, acronym.). The Op Cmd also has the benefit of preliminary program cost estimates (0.1.9.5) being defined, which is a signifcant factor in developing their strategy for prioritizing and allocating resources to the mission need areas. The most appropriate PSCO candidates can be referenced in the MNS as a potential set of alternatives that address the mission need. This preliminary development is also used in defining a nominal set of work statements and technical plans for a Phase 0 effort (1.1). Should the Op Cmd pursue a Milestone 0 decision, this type of information (database - 0.1.9.4) is very useful, especially in developing an initial budget wedge (0.1.9.8) for the POM/BES (Program Objective Memorandum/ Budget Estimate Submission) that will identify funding to support follow-on developments. A key output from the PSCO (and draft MNS) activity is the information for updating the Mission Areas Development Plan (MADP) (0.1.9.6) and for pulling together the material for developing the annual Technology Investment Recommendation Report (TIRR) that is transmitted to the Laboratories (0.1.9.7).

TASK 0.2

Develop and Approve MNS

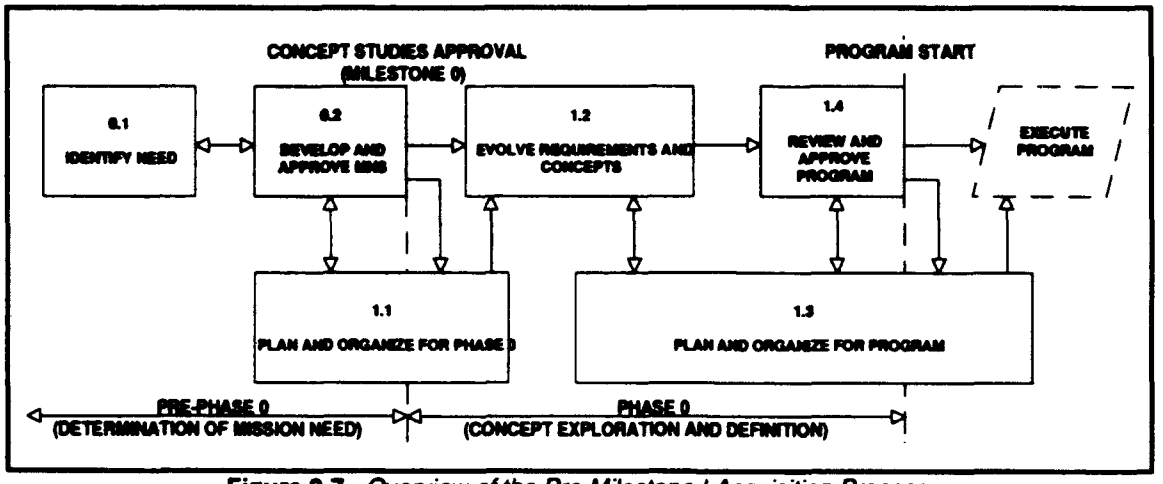

Figure 3-7. *Overview of the Pre-Milestone I Acquisition Process*

Summary

Entrance into Task 0.2 begins with events from Task 0.1 (Identify Need). An identified need is usually derived from intelligence community threat information. However, it may also result from an operational deficiency. At this point, the Defense Intelligence Agency (DIA) has provided an independent threat assessment in order to provide the material required for intelligence reports that may be required to support the Defense Acquisition Board (DAB). Events in Task 1.1 (Plan and Organize for Phase 0) flow in and out of this task. When the Operating Command determines they have an operational need that cannot be satisfied by nonmateriel means, they will prepare a Mission Need Statement (MNS) and request an Air Force decision, through HQ USAF/XOR, to proceed to a Milestone 0 decision. Once the MNS has been approved, exit from this task goes to Task 1.2 (Evolve Requirements and Concepts). In this task various alternatives are explored. An Operational Requirements Document (ORD) is written, the data base is updated, various reviews and updates to cost estimates occur. See Task 1.2 for complete details (Figure 3-1).

The purpose of this task is to identify and document a mission deficiency that requires a materiel solution. This will be documented in a MNS. This task follows the MNS up to the point when a Phase 0 Program Management Directive (PMD) is released. The objective is to describe the deficiency in broad operational capability terms as well as to identify the projected threat environment and applicable operational constraints. DoDI 5000.2 requires a MNS to be completed by Milestone 0. A MNS is required for all potential materiel acquisition programs, not just major programs. If the MNS results in a new major defense program Acquisition Category (ACAT) I, it must be sent through the Air Staff to the Joint Requirements Oversight Council (JROC) for review. The JROC's function is to review, validate, and approve the mission need. The JROC is the initial milestone review link with the requirements generation system. After JROC review, it is sent to the Defense Acquisition Board (DAB) for review. In the instance of nonmajor new defense programs (ACAT II-IV), the MNS is validated by the Operating Command. It is then sent to the Air Staff for approval and subsequently to the Air Force Systems Acquisition Review Council (AFSARC) for a milestone review.

The more detailed tasks outlined in Figure 3-1 only briefly describe all the processes referred to in the Task 0.2 data flow chart. This figure indicates the sequence in which tasks (indicated by the chart task

number) should typically occur. Consult the pertinent data sheet in Appendix D for specific details of any particular task. Data sheet numbers are identified in parentheses at the end of each subtask paragraph.

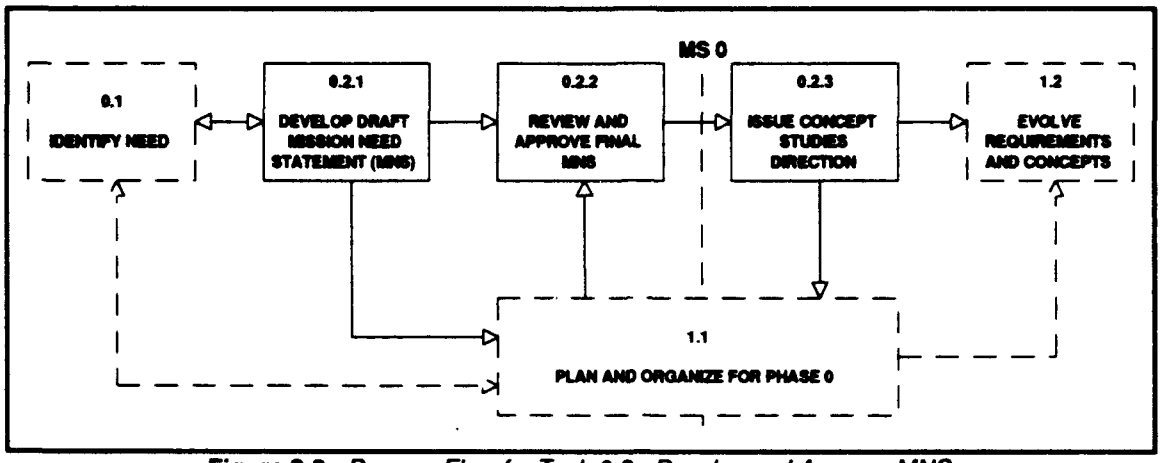

Figure 3-8. *Process Flow for Task 0.2 - Develop and Approve MNS*

Tasks

Task 0.2.1 - Develop Draft MNS

This task begins with the establishment of an Integrated Manpower, Personnel and Comprehensive Training and Safety (IMPACTS) planning team. This team is formed at the end of the Mission Need Analysis (MNA) process (if a materiel solution is needed) and in time to provide inputs into writing the MNS. Inputs to the process, in addition to the MNA (Task 0.1.7 of Figure 3-3), are derived from an assessment of nonmateriel alternatives (Task 0.1.9 of Figure 3-3) and from studies that may have been performed by advisory groups. The formal process that began with the identification, by the using command, of a need that requires a materiel (hardware/software)solution will continue throughout the life of the system. Outputs to this process are the Preliminary IMPACTS Program Plan (P-IPP) (Task 0.2.1.2 of Figure 3-3) and the risk assessment to the Integrated Program Summary (IPS).

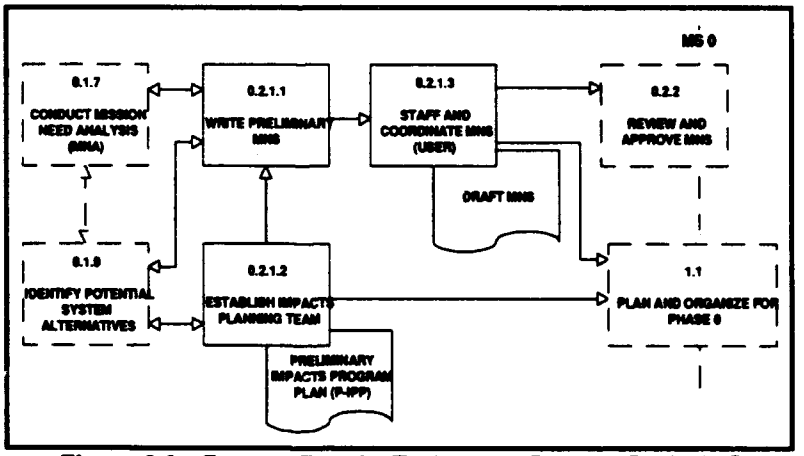

Figure 3-9. *Process Flow for Task 0.2.1 - Develop Draft MNS*

The task continues with the identification of a mission deficiency or technology opportunity that requires a materiel solution based on the MNA. This is determined by Defense Planning Guidance (DPG), assessment of nonmateriel alternatives, identification of a deficiency that requires a materiel solution, potential materiel alternatives, threat information, and constraints to meeting the need that include the results of the IMPACTS planning team (Task 0.2.1.2 of Figure 3-3). At this point, the preliminary MNS (Task 0.2.1.1 of Figure 3-3) is

drafted by the operating command per DoD 5000.2-M, Part 2, Attachment I and AFI 10-601, Attachment 4 procedures and format. This process is concluded when a draft MNS is ready for staff review and coordination (Task 0.2.1.3 of Figure 3-3).

The staff review and coordination which follows include an assessment of the current threat information from AF/IN. It must be validated by the DIA for ACAT I programs to ensure that the threat used to develop the MNS will remain valid up through Chief of Staff of the Air Force (CSAF) approval. The overall staffing and coordination process that originates at the Operating Command (where the MNS is drafted), continues through Air Staff coordination, JROC, Service, Commander in Chief (CINC), and Joint Staff coordination (ACAT I). It ends with validation and approval by the JROC (ACAT I). MNS for ACAT II-IV are validated by the operating command, sent to the Air Staff for approval, then presented to the AFSARC for milestone review. In this instance, the Operating Command is the validation authority and CSAF is the approval authority. This review is complete when the MNS has been approved by the operating MAJCOM/CC and it has been submitted to HQ USAF/XOR for final Air Staff coordination and CSAF approval (Task 0.2.1.2, 0.2.1.1, 0.2.1.3).

Task 0.2.2 - Review and Approve Final MNS

This task begins when the MNS is complete (Task 0.2.1 of Figure 3-4). The threat analyses contained in the MNS is a key input and must be approved by AF/IN (Task 0.2.2.1 of Figure 3-4). Prior to Milestone 0, the intelligence office of the operating command will conduct a strategy-to-task analysis to determine whether the existing intelligence infrastructure is sufficient to meet the given need. This includes data flow and data bases; target materials, mapping, charting and geodesy; system interfaces; security classification; and personnel and training. The operating command's Intelligence Counterpart Officer (ICO), in concert with Air Force Intelligence Command and the Operating and Implementing commands requirements staffs, determine the operational task associated with a mission need. The ICO links operational tasks to required intelligence subfunctions and an intelligence program.

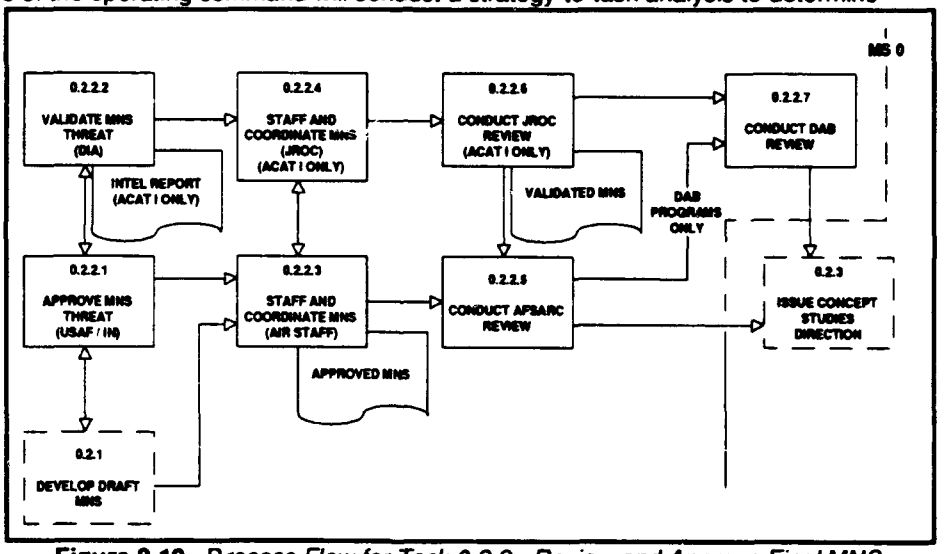

Figure 3-10. *Process Flow for Task 0.2.2 - Review and Approve Final MNS*

At the Air Staff level , HQ USAF ICO, assigned by HQ USAF/INX, will review and validate the intelligence infrastructure base for a given need, based on the strategy-to task analysis. HQ USAF/IN (Task 0.2.2.1 of Figure 3-4) forwards threat documents to DIA (Task 0.2.2.2 of Figure 3-4) under a cover memorandum indicating their approval. Validation occurs when the DIA validates the MNS (Task 2.2.2 of Figure 3-4) and a DIA Intelligence Report (for ACAT I only) (Task 0.2.2.2 of Figure 3-4) has been completed.

The coordination continues when HQ USAF/XOR (which is the Air Staff coordination point) receives the "for comment" MNS from the operating command. After HQ USAF/XOR approval, the MNS is sent to

CSAF for approval. For ACAT I programs, HQ USAF/XOR concurrently submits the final MNS (Task 0.2.2.4 of Figure 3-4) to the JROC Secretariat for 2-star level Service, CINC, and Joint Staff review (Task 0.2.2.3 of Figure 3-4). It is complete when a Service, CINC, and Joint Staff coordinated MNS is ready for JROC review (for ACAT I)(Task 0.2.2.6 of Figure 3-4) and a JROC briefing has been approved; or, when notification has been made (for ACAT II-IV programs) to the Milestone Decision Authority (MDA) that the MNS has been approved or disapproved. The JROC briefing must be given to the JROC Secretariat 2 weeks prior to the JROC review and 30 days prior to the DAB. The result of the JROC review is a validated MNS and its associated intelligence report as well as recommendations and trade-offs on cost, performance and schedule for the future DA review (Task 0.2.2.7 of Figure 3-4).

The next phase of coordination is for the AFSARC. The AFSARC (Task 0.2.2.5 of Figure 3-4) is normally held at least 5 weeks before the DAB review. Documentation requirements are the same as for a milestone review. For Milestone 0 the MNS and DIA Intelligence Report (ACAT I) or Component Intelligence Report (ACAT II-IV) is required. The product from this review, for non-DAB programs, is an Acquisition Decision Memorandum (ADM). The sponsoring member will prepare the ADM, with coordination through the AFSARC Executive Secretary, for signature by the Air Force Acquisition Executive (AFAE) within 5 working days of the AFSARC review. This is the go ahead to proceed into Phase 0. For DAB programs, the sponsoring member will update the briefing for the DAB to include AFSARC findings, coordinate it within the Air Staff, and provide the results to the Defense Acquisition Executive (DAE) within 10 working days so that continuance can be made to proceed to the DAB.

The last review that must take place is the DAB Milestone 0 (Task 0.2.2.7 of Figure 3-4) Review. It is held to determine if a documented mission need warrants the initiation of study efforts of alternative concepts and to identify the minimum set of alternative concepts to be studied to satisfy the need. Input to this review is a validated MNS, DIA Intelligence Report and all the documentation identified by the Milestone Decision Authority (MDA) or the responsible committee/review boards that support the milestone decision process. This review process is complete when the ADM has been approved and distributed (Tasks 0.2.2.1, 0.2.2.2, 0.2.2.3, 0.2.2.4, 0.2.2.5, 0.2.2.6, 0.2.2.7).

Task 0.2.3 - Issue Concept Studies Direction

This task begins with the issuance of the ADM (Task 0.2.3.1 of Figure 3-5) by the MDA. Upon receipt of the ADM from the MDA, the appropriate Air Staff office (e.g., AF/XOR) issues a Program Management Directive (PMD) (Task 0.2.3.2 of Figure 3-5) which clearly identifies specific responsibilities of those agencies whose efforts are required for completing the Phase 0 activities. The PMD typically assigns the implementing, supporting, participating, operating commands and test agency. It also identifies requirements, as identified from the MNS and related documents, such as the Defense Planning Guidance (DPG). Project specific information such as resource priority rating, additional constraints, authority and deviations, critical interfaces and force integration issues, Army control treaty verification, project short title and resources (financial and manpower) may be included in the PMD. The PMD is coordinated with all major command level organizations who are tasked with direction prior to it being coordinated throughout the headquarters. The originating office is responsible for complete distribution of the final document in accordance with SAF Headquarters Operating Instruction (HOI) 800-2, Attachment 6, which lists the mandatory distribution list (Task 0.2.3.2).

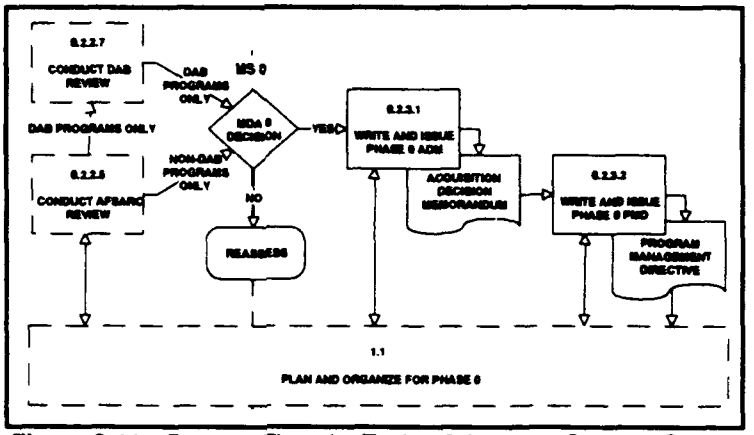

Figure 3-11. *Process Flow for Task 0.2.3 - Issue Concept Studies Direction*

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Chapter 4

Concept Exploration and Definition (Phase 0) Activities

TASK 1.1

Plan and Organize for Phase 0

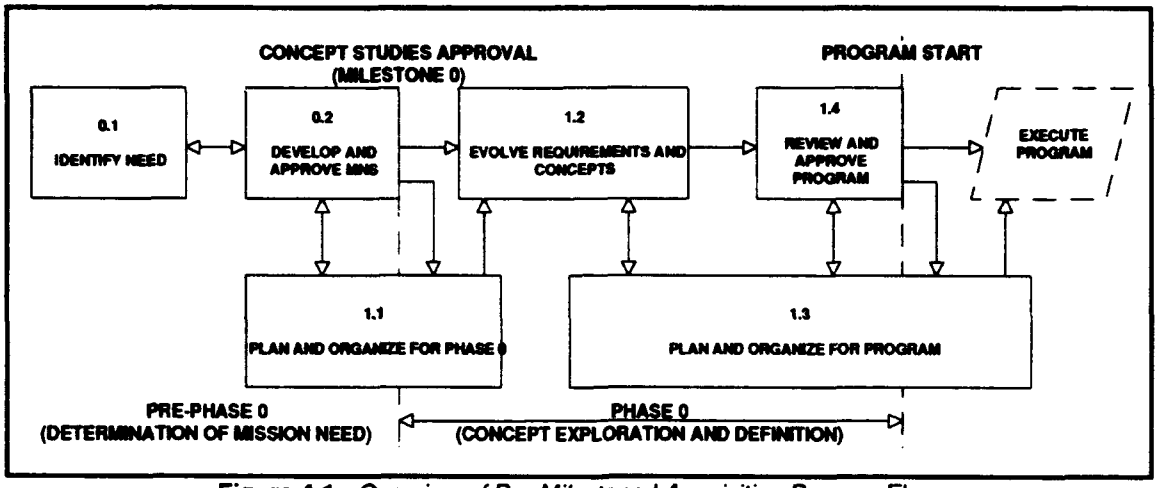

Figure 4-1. *Overview of Pre-Milestone I Acquisition Process Flow*

Summary

Entrance into Task 1.1 begins with the events from Task 0.2 (Develop and Approve MNS). There is flow back and forth between the activities in Task 0.2 and this task while the MNS is being prepared. The lead operating command will begin planning for Phase 0 as soon as a draft Mission Need Statement (MNS) is available. Since the MNS passes through successive levels of review and coordination, approval and validation and because only the most current MNS should be used, there may be information that flows back and forth between Task 1.1 and 0.2 or vice versa up to the time the MNS has been approved. Planning information, which may be needed before the Milestone Decision Authority (MDA) approves the Concept Exploration and Definition (CE&D) phase, may flow from Task 1.1 to 0.2. A subsequent return arrow from Task 0.2 to 1.1 may indicate guidance provided by the MDA staff prior to a Milestone decision. Additionally, Task 1.1 may pass updated Phase 0 planning information to Task 1.2 (Evolve Requirement and Concepts). It should be noted that requirements and concepts cannot be formalized until Task 0.2 is complete, see Figure 4-1.

The purpose of this task is to determine the Air Force Concept Exploration and Definition (Phase 0) planning position. The objective will identify and document the following planning information:

- Phase 0 purpose, objectives, constraints, and assumptions.
- Proposed strategy and organization for accomplishing Phase 0.
- Estimates of the required schedule and resources needed to accomplish Phase 0.
- Content recommendations for the Phase 0 Acquisition Decision Memorandum (ADM) and Program Management Directive (PMD).

At this point the Operating Command has identified an operational need that cannot be met through nonmaterial means. Once a MNS has been written and forwarded for Concept Exploration and Definition (Phase 0) review and approval, the lead Operating Command should initiate planning activities to identify the desired participants, strategy, organizational structure and relationships, and associated costs for Phase 0. The lead Operating Command is responsible for ensuring that coordination, by each of the implementing organizations, has been accomplished for each of the planning efforts prior to formulating the proposed Air Force position on how Phase 0 will be accomplished.

The more detailed tasks outlined in Figure 4-2 briefly describe all the processes referred to in the Task 1.1 data flow chart. This figure indicates the sequence in which tasks (indicated by the chart task number) should typically occur. Consult the pertinent data sheet in Appendix X for specific details of any particular task. Each data sheet is identified by its unique Task Breakdown Structure (TBS) number which is identified in parentheses at the end of each subtask paragraph.

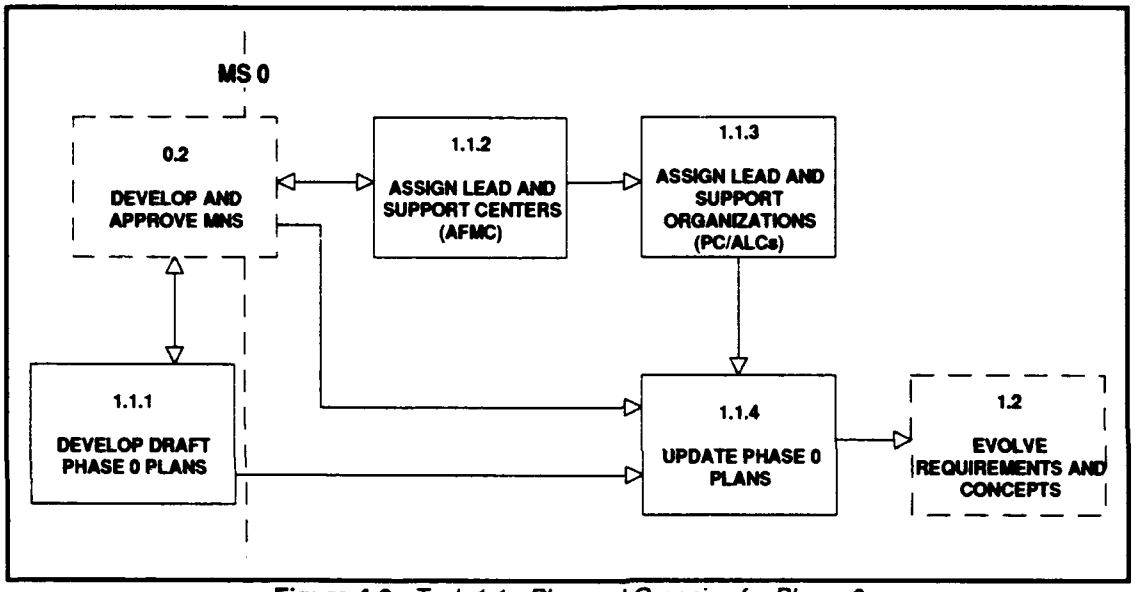

Figure 4-2. *Task 1.1 - Plan and Organize for Phase 0*

Tasks

Task 1.1.1 - Develop Draft Phase 0 Plans

This task begins when the Operating Command determines they have identified an operational need that they believe cannot be satisfied by nonmateriel means. The Operating Command is responsible for writing the MNS and requesting an Air Force decision, through USAF/XOR, to proceed to a Milestone 0 decision. The lead Operating Command should initiate planning activities to identify the desired participants, strategies, organizational structure and relationships, and associated costs and manpower required for Phase 0 (Task 1.1.1.1 of Figure 4-3). AFMC Product Centers (PCs) and/or Air Logistics Centers (ALCs), will typically provide the lead Operating Command with the majority of the Phase 0 planning information to support the potential Air Force Acquisition program (Task 1.1.1.2 of Figure 4-3). The Integrated Weapon System Management (IWSM) philosophy and principles discussed in AFMCP 800-60 should be used as overall guidance for establishing a quality team and creating a plan for Phase 0. The following planning information is identified and will be documented to support the lead Operating Command's preliminary Phase 0 planning:

- Phase 0 constraints and assumptions.

- Alternative strategies and organization for completing Phase 0 objective.
- Identification of all tasks required to complete Phase 0 objectives. These are documented in some form of work statement and coordinated with the lead Operating Command.
- Schedule estimates with exit criteria for completing all Phase 0 objectives.
- Estimates of required resources needed to complete Phase 0 objectives.
- Content recommendations for the Acquisition Decision Memorandum (ADM) and Program Management Directive (PMD).

Creation of a Project Data Base early in the project will provide technical information that will prove to be invaluable when addressing technical problems/issues in Phase 0. This key repository of information was developed by analyses and simulations. Maintaining interfaces with laboratories and industry is also a valuable source of information.

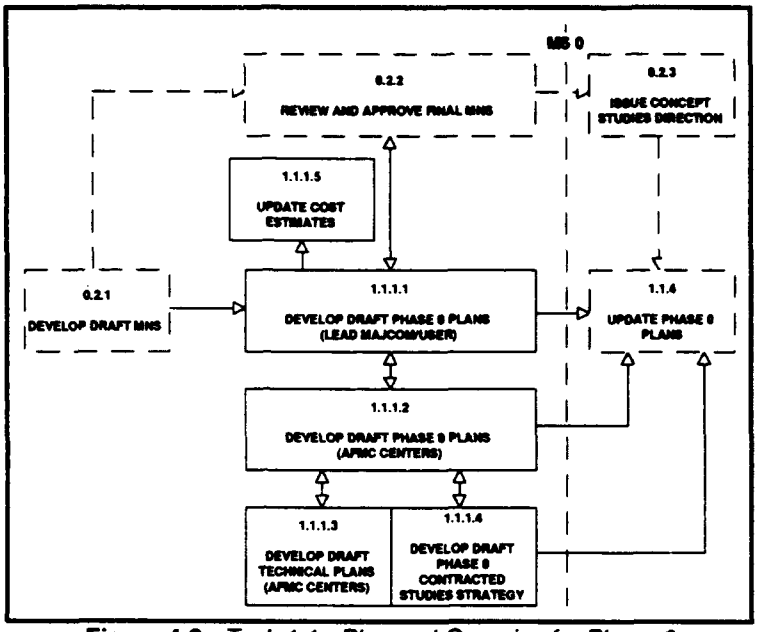

Figure 4-3. *Task 1.1 - Plan and Organize for Phase 0*

The following Phase 0 documents are created (Task 1.1.1.3 of Figure 4-3) as part of the technical planning process:

- Draft Work Statements that cover both government and industry tasks.
- Draft Functional Plans.
  - Initial Systems Engineering Master Schedule (SEMS).
  - Strawman Systems Engineering Management Plan (SEMP).
  - Initial Integrated Logistics Support Plan (ILSP).
  - Updated Logistics Support Analysis (LSA) Strategy.
  - Strawman Program Protection Plan (PPP).
- Draft Strawman Baseline Concept Document (BCD).

Another vital activity in the planning stage for Phase 0 is the development of a contracting strategy (Task 1.1.1.4 of Figure 4-3). The contracting strategy will fulfill the potential contractual needs of the project by considering risk, contract method, period of performance, etc. The initial contracting strategy will include plans for managing the contractor-conducted Concept Exploration and Definition studies and will define the type of solicitation and contract that will be used for this effort. This strategy will be incorporated in the overall initial Phase 0 strategy that is used to obtain a Milestone I decision.

The Operating Command's point of contact may choose to establish a Studies Advisory Group (SAG) (optional). The ASC project manager, with the help of the SAG or Operating Command project officer, will examine the activities that were defined during Phase 0 planning and update the cost estimates, as necessary. The updated cost estimates will be used by the ASC project office for the Program Memorandum/Budget Estimate Submittal (POM/BES).(Task 1.1.1.5 of Figure 4-3). A prerequisite to POM/BES submittal to the Air Staff is its review and approval by the Operating Command's ultimate user. The initial POM wedges should be submitted or updated at the earliest opportunity to ensure that all funding is available to support execution of the planned project and to prevent possible schedule delays. This activity is completed with the delivery of the Air Force POM to Office of the Secretary of

Defense (OSD) on the first of April in even-numbered years. The OSD activity is complete when the Program Objective Memorandum (POM) has been signed by the Secretary of Defense in July/August of even-numbered years. The key output of this task is a POM (Tasks 1.1.1.1, 1.1.1.2, 1.1.1.3, 1.1.4, 1.1.1.5.1, 1.1.1.5.2, 1.1.1.5.3).

Task 1.1.2 - Assign Lead and Support Centers (Air Force Materiel Command)

This task begins following the receipt of the PMD from HQ AF/XOR. The PMD provides tasking for the program. The AFMC Mission Assignment Process is the first major action taken by HQ AFMC following the release of the PMD by Air Staff. Task 1.1.2 is complete when AFMC/XP assigns the new mission task to one of the command's centers of excellence for execution and the New Mission Assignment Notification Letter (Letter of Assignment) is sent to the Center chosen. A notification package may subsequently be sent to Congress which explains the rationale for assigning the PMD tasking to a particular Center. In the case of ASC, the task is entered into the ASC New Work Review process for internal allocation. AFMC/XP makes mission assignments to the appropriate Center based on a set of objectively measurable criteria including areas concerning customer requirements, technical characteristics of the proposed assignment, present and future posture of the command and the overall needs of the Air Force and DoD. see Task 1.1.2 of Figure 4-2.

Task 1.1.3 - Assign Lead and Support Organizations (AFMC Centers)

This task begins when new work enters an ASC acquisition organization, via a letter of assignment from the Air Force Materiel Command Mission Assignment Process. This ASC/CC letter assigns to the lead and support Centers any work that exceeds the organization's directed mission, workload baseline, manpower baseline or tasking from the Command Section of the ASC Council. The first step of the process is to evaluate the new work for "appropriateness." This ensures compatibility of the work with the mission of both the ASC and the acquisition organization to which the work will be assigned. The corporate level review portion of the process starts by activating the caretaker (ASC/CYN) to assemble a working group that will include all the affected organizations. That group will look at unresolved issues and recommend a solution to the Command Section. At this point, a final decision is reached that either resolves the issue and allows for the "Task Go Ahead" or returns the new work to the customer with an explanation of the unresolvable issue(s). Notification of acceptance of new work or formal mission assignment will support the subsequent update to the Phase 0 plans. The task is complete when notification of new work acceptance is received from the acquisition organization; a Task Go Ahead from the Command Section or ASC Council is received; or, a System Program Office (SPO) is established, see Task 1.1.3 of Figure 4-2.

Task 1.1.4 - Update Phase 0 Plans

This task begins when the Milestone Decision Authority (MDA) is satisfied with the MNS and any requested Phase 0 planning information and approval is given to proceed with Phase 0 concept studies. The MDA will issue an ADM, and AF/XOR will issue a PMD. Subsequent to receipt of these documents, the Operating Command will update the Air Force Phase 0 (Task 1.1.4.1 of Figure 4-4) plans to bring them in line with guidance provided by the ADM and PMD. When approved, these plans become the Air Force baseline. The baseline will be used as the basis for executing and controlling all Phase 0 activities. When significant changes are required to any of the plans, rework, recoordination and approval as well as rebaselining of the document(s) will be required. Subsequently the PC/ALC will update their plans (Task 1.1.4.2 of Figure 4-4), if required, and forward them to the lead Operating Command for review, approval, and inclusion in the Air Force plans. Charters should be drawn up and approved, by the PC/ALC and user, to formally establish steering or working groups in instances where Phase 0 plans identify a need or desire for management or technical support group assistance.

Technical plans, which consists of the draft functional plans identified in Task 1.1.1 and summaries from prior steering group for threat, concept, etc., must be updated and preliminary system concept

developments must be initiated (Task 1.1.4.3. of Figure 4-4). These documents will form the basis from which technical analysis plans can be produced for Government and contracted activities. Information derived from them will be used to prepare draft System Requirement Documents (SRDs), draft BCDs and a draft Cost and Operational Effectiveness Analysis (COEA) Plan.

The data base (Task 1.1.4.5 of Figure 4-4) is continually updated to provide a central location for the collection and storage of information/data. This information/data will be used by the Project Team to support decisions they make in response to external and internal requirements. Data base inputs result from updated technical plans, e.g., updated work statements, preliminary COEA plans; preliminary SRD; draft BCD; Integrated Weapon System Management (IWSM) Master Plan, acquisition strategy; and, other approved pertinent information which has been added after the data base was established. The inputs are used unaltered as outputs. In addition to data required to conduct Concept Exploration Studies, other approved pertinent information required for successor task activities is included in the data base.

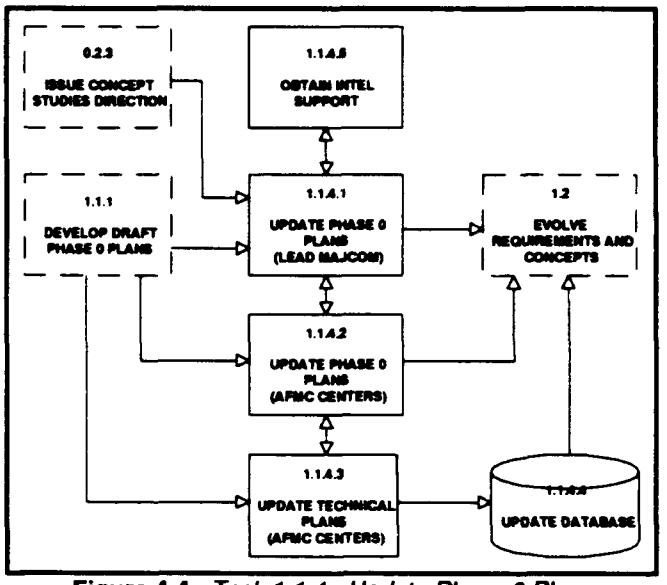

Figure 4-4. *Task 1.1.4 - Update Phase 0 Plans*

Whenever requested, HQ USAF/IN, in concert with the Defense Intelligence Agency (DIA), will provide intelligence and threat support to the Concept Action Group (CAG). Note that CAGs are typically associated with ACAT I designated Phase 0/I efforts. For ACAT II-IV efforts, an equivalent "study team" group will be formed. The CAG, who is the lead in the development of the COEA and the Operational Requirements Document (ORD), is a study group formed to manage Phase 0 and must ensure that implementing organizations notify HQ USAF/IN and DIA to develop/update threat assessment documents. These documents are continuously updated throughout the acquisition process from determination of need to operational employment. At the same time, a SAG (optional) may be formed. This is a senior level management oversight group established and led by the lead Operating Command to ensure the Operating Command, the Implementing Command and decision makers continue to work together throughout the development of Phase 0 concept studies and the COEA.

Threat assessments for all Defense Acquisition Board (DAB) documents will be system specific. When significant change in the threat occurs, especially threat affecting critical system characteristics, Critical Intelligence Parameters (CIPs) and the CIP Threat Status, the validated threat assessments will be revised and reissued by the responsible DoD Component and/or DIA.; or, an out of cycle update, pertaining to critical program events, will be developed and issued. The update to Phase 0 plans will result in intelligence support to the Air Force. The intelligence support is provided by the input, review and validation of threat documentation as it is initiated by the acquisition command between Milestone 0 and Milestone I (Tasks 1.1.4.1, 1.1.4.2, 1.1.4.3, 1.1.4.4, 1.1.4.5.1, 1.1.4.5.2).

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TASK 1.2

Evolve Requirements and Concepts

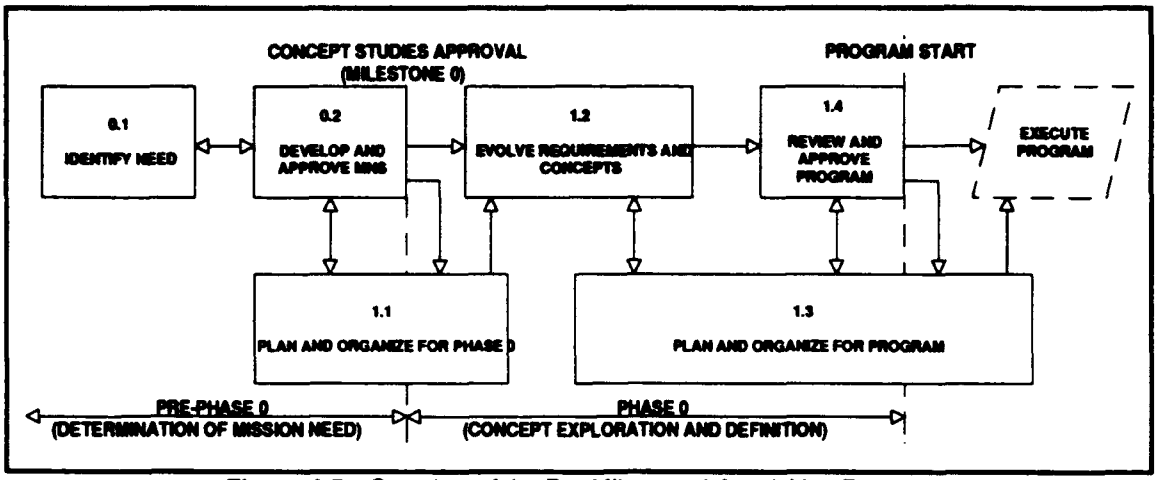

Figure 4-5. *Overview of the Pre-Milestone I Acquisition Process*

Summary

The most critical task (1.2) of any system or product evolution occurs during this segment of the Phase 0 acquisition. There are a myriad of both technical and programmatic decisions being made as the operating command's mission need is translated into: a) operational, functional and system requirements and b) a number of potential solution alternatives that are eventually narrowed to one or possibly two "best options". Normally, the scope or magnitude of these potential alternatives will have a direct affect on the duration of the task. ACAT I efforts may vary from 9 months to 2-3 years, with the major weapon systems acquisitions and, in particular, joint Service activities taking the longest. Other acquisition categories will typically require less time to complete, i.e., 3-12 months.

It is very important for the project cadre to have:

a) clear and reasonable objectives,
b) a firm, defined approach and direction,
c) a complete perspective for the scope or magnitude of the activities that will develop the basis for a Milestone 1 decision, and
d) an awareness of any major issues that will need resolution or that could affect the task's execution.

Tasks 0.2 and 1.1 must establish and maintain these facets of the overall effort. The primary goals of Task 1.2 are to provide: a) a rigorous assessment of requirements and alternative approaches for system concepts and b) a defendable position for the solution(s) and activities that will be proposed for the next phase (Phase 1). To be completely successful, the project cadre should be a closely knit IPT that retains corporate knowledge from the Pre-Milestone 0 Phase and the Milestone 0 decision event. Member representation should come from across the Operating, Implementing and Supporting Commands, including Air Staff and applicable Field Operating Agencies.

Two initial activities (see Fig 4-2) address the development of operational requirements (Task 1.2.2) and the exploration of alternative system concept approaches (Task 1.2.1). There is significant interaction between these two, as trades and sensitivities to the requirement levels are conducted and concept alternatives are defined and evaluated for their suitability. In many cases, these alternatives are extensions of the preliminary options that were developed in support of the MNS definition, prior to the MS 0 decision. These, and any additional alternatives identified by the MDA, are typically referenced in the ADM and the PMD for Phase 0.

The time frame of the mission need will influence the identification of technologies that can be applied. Normally, the Operating Command's desire for an Initial Operational Capability (IOC) will be translated into a Required Assets Available (RAA) date for the acquisition of a given number of assets (equipment, personnel and logistics elements) and a Technology Availability Date (TAD) for the laboratory community's target for having identified technology capabilities available. Another area that the concept alternative exploration activity will also address is the application potential for current or projected available capabilities through Non-Development Items (NDI, sometimes referred to as Commercial Off-The-Shelf -- COTS) and cooperative opportunities with Allied or other international capabilities (COD). Although these are considered during the pre-MS 0 tasks (Task 0.2), they are examined once again during the definition and assessment of the system concept alternatives.

The operational requirements activity is focused on development of the ORD, and receives updates from the trades and sensitivities as they're conducted in the concept alternatives activity. The ORD, and accompanying RCM, is solution oriented and describes system-specific characteristics, capabilities and other operational variables. The draft ORD/RCM transitions to a final version once the results from a COEA activity are developed and validated. The COEA is conducted to identify/select preferred alternative(s) through a comparative analysis of the various concepts that have been developed and reviewed in the Program Alternatives Assessment.

Once the Operating Command has identified and approved the preferred alternative(s) selection, the POM/BES submission is prepared and the activity to further define the system concept definition is initiated. This concept definition activity develops the detailed system descriptions that will be used in the specifications for potential Phase 1 activities. This information is also shared with the task (Task 1.3) that is developing plans and organizing for Phase 1 and the activity that is concluding development of operational requirements. The project database is updated with the latest decisions and developments in preparation for the final task (Task 1.4) that will be seeking MS 1 approval.

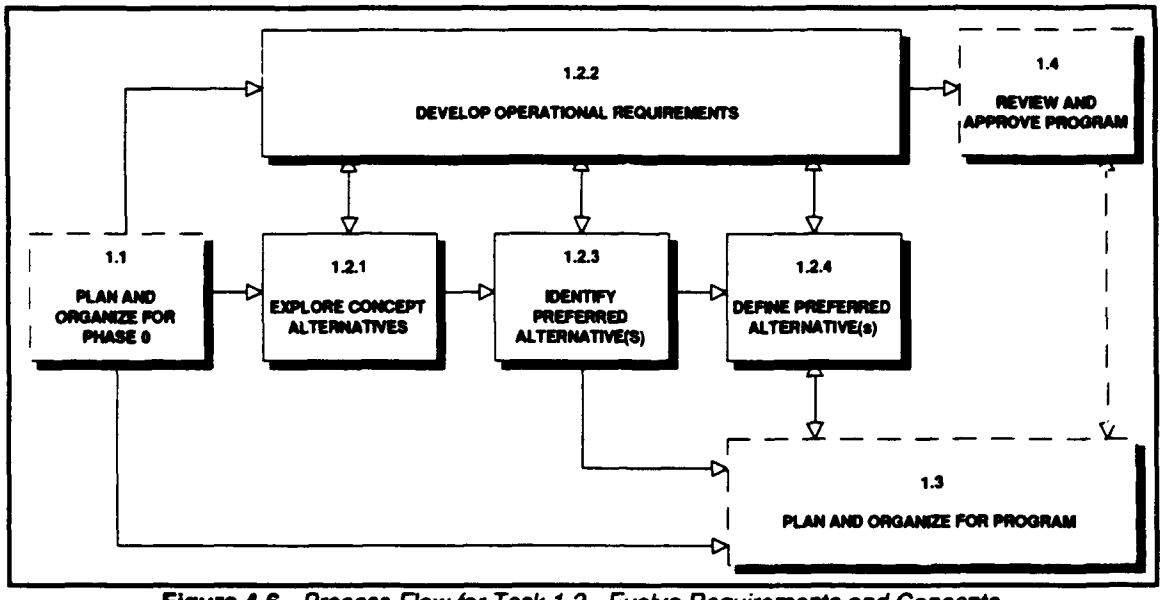

Figure 4-6. *Process Flow for Task 1.2 - Evolve Requirements and Concepts*

Tasks

Task 1.2.1 - Explore Concept Alternatives

This task begins with the PMD and the updated, approved acquisition strategy (see Task 1.1). At this time, an overall acquisition schedule will be developed and steering and working groups will be established or reconvened, as required. Once the government's objectives and position have been firmly established, the activity flows into the procurement of contracted Concept Exploration Studies. These studies, which may involve cooperative government/industry developments, can be accomplished if the work statements are current for Phase 0, the preliminary Cost and Operational Effectiveness Analysis (COEA) plan has been drafted, and initial top level operational and system requirements have been defined.

The following documents, along with contracting strategy and budgetary requirements to support the studies, are prepared:

Preliminary Operational Requirements Document (ORD).
Draft System Requirements Document (SRD).
Government Systems Engineering Management Plan (SEMP).
Initial Baseline Concept Description (BCD) for each alternative concept to be studied.
Draft Contractor Systems Engineering Management Plan (SEMP).
Systems Engineering Master Schedule (SEMS).
Draft Test and Evaluation Master Plan (TEMP).

The output resulting from this activity is a functional architecture for each alternative conceptual design, concept design sheets/schematic task diagrams for each concept, updated BCD for each concept, draft Interface Control Documents (ICDs) for each concept, a critical technologies list, an updated SRD, concept risk assessments (addressing products and processes, system performance, schedule and cost), and other initial documentation, such as specification trees, Work Breakdown Structures (WBSs), critical item specifications, facility requirements and processes documentation.

During the concept studies, assessments of needed technology areas are performed and any necessary updates are examined for nondevelopment items (NDIs) and Cooperative Opportunity Developments (COD). An Alternative Systems Review (ASR) completes the concept exploration and is followed by an update to the project database. (Tasks 1.2.1.1, .1.2.1.2, 1.2.1.3, 1.2.1.4, 1.2.1.5, 1.2.1.6, 1.2.1.7)

Task 1.2.2 - Develop Operational Requirements

Another task begins with receipt of the updated plans for Phase 0, the concept of operations, a validated Mission Need Statement (MNS), and results from the Pre-MS 0 investigation of preliminary system concept options (SCOs). This permits the lead operating command to prepare the draft Operational Requirements Document (ORD) which will describe pertinent quantitative and qualitative performance, operation, and support parameters, characteristics, and requirements necessary to meet the MNS. When the results from the COEA (see Task 1.2.3) has received the Air Force Chief of Staff (CSAF) approval, the draft ORD will begin its review cycle (that includes updates from Task 1.2.4), which is similarly completed with CSAF approval. An update of the Program Objective Memorandum/ Budget Estimate Submission (POM/BES) will follow.

Preparation for the Requirements Summit is the next event. Subsequent approval at the CSAF level with documentation in the form of minutes (of recommendations, action items and lessons learned) completes this task (Tasks 1.2.2.1, 1.2.2.2, 1.2.2.3, 1.2.2.4).

Task 1.2.3 - Identify Preferred Alternatives

Another task begins once a Concept Advisory Group (CAG) has been established for the purpose of developing and approving the COEA Plan. The CAG will review the study team's list of alternative solutions which are reviewed in the Program Alternatives Assessment (PAA). Execution of the PAA will ensure that all business, financial, and political risks have been considered during Concept Exploration (see Task 1.2.1.). A comparative analysis will then be conducted during the COEA to assess the adequacy of the details developed for the alternatives being considered and to identify key performance parameters. This comparative analysis should reduce the number of alternatives that need to be considered during Phase I tasks. When this activity is completed by the identification of preferred alternative(s), updates can be made to the cost estimates and the database. The selection of preferred concept alternative(s) that satisfy the MNS must have been staffed, coordinated and approved by the operating command. (Tasks 1.2.3.1, 1.2.3.2, 1.2.3.3, 1.2.3.4, 1.2.3.5, 1.2.3.6, 1.2.3.7)

Task 1.2.4 - Define Preferred Alternatives

This task develops the lower level (Work Breakdown Structure - WBS) details of the preferred system concept(s), completes more of the documentation needed for the MS 1 approval effort (see Task 1.2.2), develops and transfers key information to the task that is preparing for Phase 1 progammatic activities (Task 1.3), and provides updates to the project database. The final versions of key documents are completed, which apply to both the preferred concept(s) and the plans for Phase 1.

Draft specifications for the system are developed through contracted efforts. Also developed are the basic details for system requirements, risk levels and potential alternatives, system security, and work tasks for Phase 1 efforts (Tasks 1.2.4.1, 1.2.4.2, 1.2.4.3, 1.2.4.4, 1.2.4.5, 1.2.4.6) .

Task 1.3

Plan and Organize for a Program

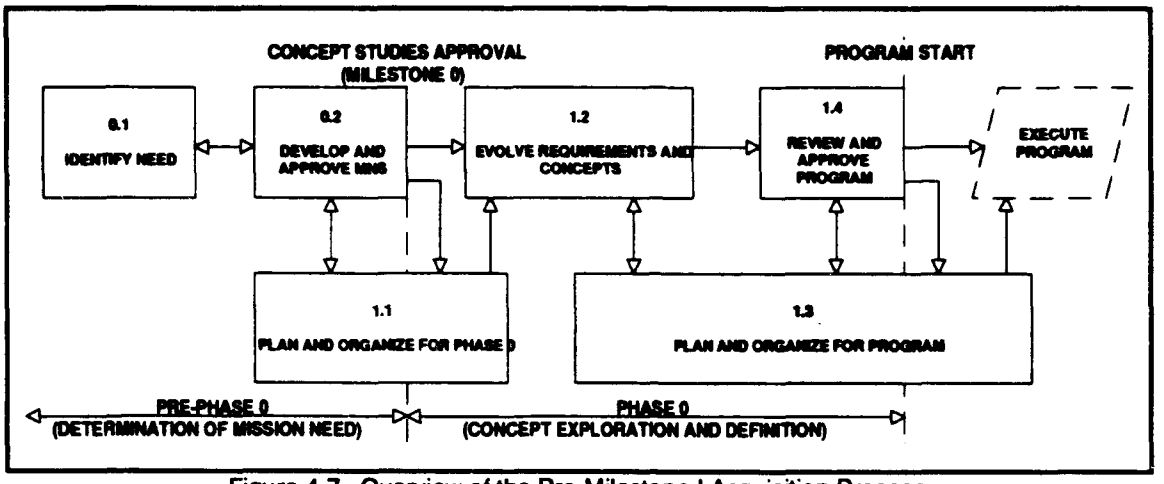

Figure 4-7. Overview of the Pre-Milestone I Acquisition Process

Summary

Entrance into Task 1.3 begins with events from Task 1.2 (Evolve Requirements and Concepts) and Task 1.4 (Review and Approve Program). The flow may be back and forth several times between Task 1.3 and Tasks 1.2 and 1.4 until the program has been approved for a program start. At this point, the required Mission Need Statement (MNS) has been received from the Operating Command or the Joint Requirements Oversight Council (JROC). Other required documents that have been received are a Concept of Operations (CONOPS) from the Operating Command and a Systems Description from the System Program Office (SPO).

The purpose of this task is to initiate and update the System Threat Assessment (Report) (STA(R)), develop the preliminary Acquisition Program Baseline (APB) and Test Evaluation Master Plan (TEMP). Execution of the Integrated Acquisition Strategy Process (IASP) will commence. Other events that will occur during this task are the receipt of drafts of Milestone I documents and functional plans. The Acquisition Strategy Report (ASR) will be completed and an Acquisition Strategy Panel (ASP) review will be held to approve the acquisition strategy. The Acquisition Plan (AP) will be developed and contracting activities will commence such as training of the Request for Proposal (RFP) team who will prepare and release the RFP. Preparation and approval of the Source Selection Plan will also occur. This activity will be followed by source selection/negotiations and the award and issue of contract(s). The assignment of lead and support centers (AFMC), lead and support organizations (AFMC Centers) and the establishment of a System Program Office (SPO) will occur. The establishment of a SPO completes this task.

The more detailed tasks outlined in Figure 4-2 only briefly describe all the processes referred to in the Task 1.3 data flow chart. This figure indicates the sequence in which tasks (indicated by the chart task number) should typically occur. Consult the pertinent data sheet in Appendix D for specific details of any particular task. Data sheet numbers are identified in parentheses at the end of each subtask paragraph.

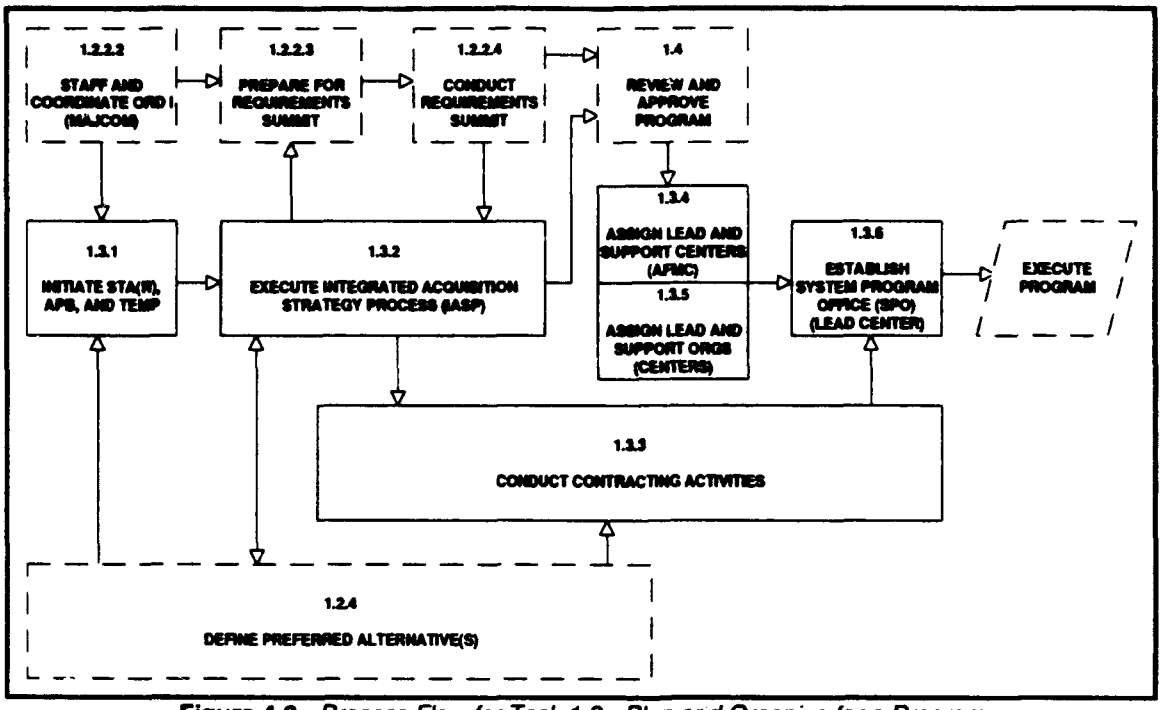

Figure 4-8. *Process Flow for Task 1.3 - Plan and Organize for a Program*

Tasks

Task 1.3.1 - Initiate STA(R), APB, and TEMP

The first task begins when a MNS has been received from the Operating Command or JROC. A CONOPS is also required from the Operating Command and a Systems Description is required from the SPO. Another required input is the MAJCOM's preferred alternative(s) selection. These documents are used to develop a preliminary STA(R). The STA(R) is the basic authoritative threat assessment tailored to and focused on a particular US defense acquisition program. The Director of Intelligence (DI) is responsible for writing and updating the STA(R). It includes an assessment of those projected capabilities, doctrine, strategy, tactics, organization, equipment and military forces that a potential enemy could use to defeat or degrade the US system during its employment. It focuses on two specific points in time -- the initial operational capability (IOC) of the US system and the IOC plus ten years in accordance with DoDM 5000.2M, Part 5 (Task 1.3.1.1 of Figure 4-9).

The second task begins with the receipt of a draft Operational Requirements Document (ORD), affordability assessments, a Cost and Operational Effectiveness Analysis (COEA), and concept definition studies. These documents are used to prepare a preliminary APB. The APB, which is prepared by the project team, defines the project in terms of key parameters that ideally represent the most cost effective and timely approach for fielding a new system that will satisfy the mission need. The APB describes cost, schedule and performance objectives for the program. Its preparation must include the Operating Command's participation in each acquisition phase to ensure that consistent performance objectives are in both the ORD and the APB. The objectives include a set of minimum acceptable requirements, (identified in the ORD) which are incorporated in the APB, the TEMP and used in the COEA as thresholds (Task 1.3.1.2 of Figure 4-9).

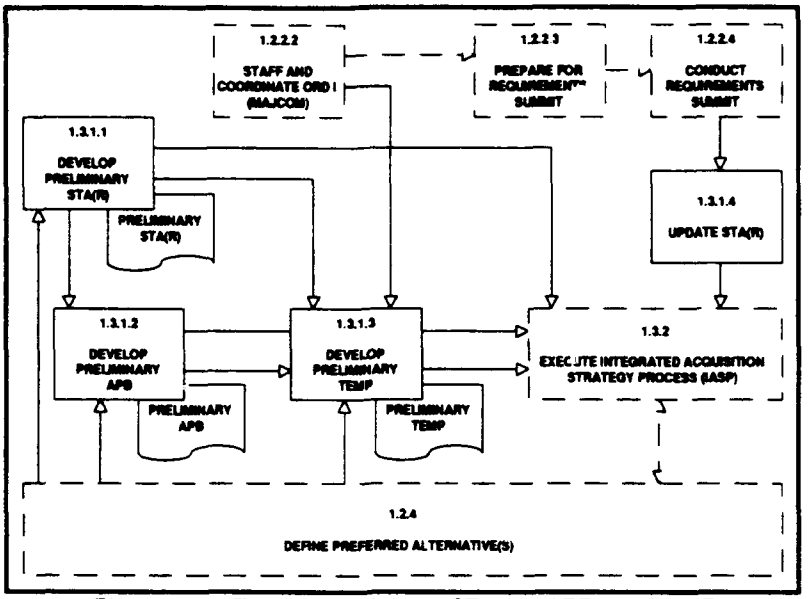

Figure 4-9. *Task 1.3.1 - Initiate STA(R), APB and TEMP*

The third task begins with the extraction of pertinent threat information from the approved/validated STA(R). This information will be included in the TEMP. Before the preliminary TEMP can be written, the following activities must be accomplished: the System ORD must be updated and incorporated in the TEMP; the COEA must be reviewed and determined to be consistent with the TEMP; a test team must be formulated; a Test Plan Working Group/Test Management Council (TPWG/TMC) must be established; the test requirements must be validated; the test concept must be developed; the test approach must be formulated and a plan for resources must be accomplished. A TEMP is required for all HQ USAF programs that are directed by a program management directive (PMD). It provides the overall structure and objectives of the test and evaluation program. It is normally prepared by the TPWG. The System Program Office (SPO) will update it, review it, and ensure that all participants (the operating, supporting and operational test and evaluation (OT&E) commands) coordinate on it prior to its submittal to higher headquarters. The final approval, including the preliminary plan at Milestone I, is due within 45 days of submittal to the Director Test and Evaluation (DTE) by the DoD component (Task 1.3.1.3 of Figure 4-9).

The final task (Task 1.3.1.4 of Figure 4-9) requires an update to the STAR(R). This is accomplished after the Requirements Summit has been conducted. It will be updated just prior to the Milestone I review in order to support the preferred concept(s) selected by the MAJCOM following the development of the COEA for Phase 0. STA(R)s are required for all ACAT 1C and 1D programs and for major modification programs. The threat report for ACAT II-IV programs is called a System Threat Assessment (STA) and is accomplished by the Component Command Intelligence Agency or AF/IN for Air Force projects. Procedures for STA are essentially the same as for the STA(R).

Task 1.3.2 - Execute Integrated Acquisition Strategy Process (IASP)

This task begins with the development of a Roundtable Execution Plan (Task 1.3.2.1 of Figure 4-10) after the Operating Command has made its selection of the preferred concept alternatives that are based on the COEA, and the Implementing Command has begun its effort in defining the preferred concept. Other inputs to this plan are the Preliminary APB and the Milestone 0 PMD. The development of the IASP execution plan is the roadmap for entering the next step in the IASP.

The subsequent step, Conduct Strategic Roundtable (Task 1.3.2.2 of Figure 4-10) is accomplished to ensure experienced senior management involvement in formulating the initial program/project acquisition strategy. Advice from the roundtable members will help the Program Manger (PM) formulate the preliminary strategy by: identifying constraints, balancing objectives, setting priorities, providing timely feedback, adding vision, identifying options, and identifying and managing risk. The output of this

is used to aid the PM in developing the acquisition strategy and as a basis for the upcoming Tactical Roundtable.

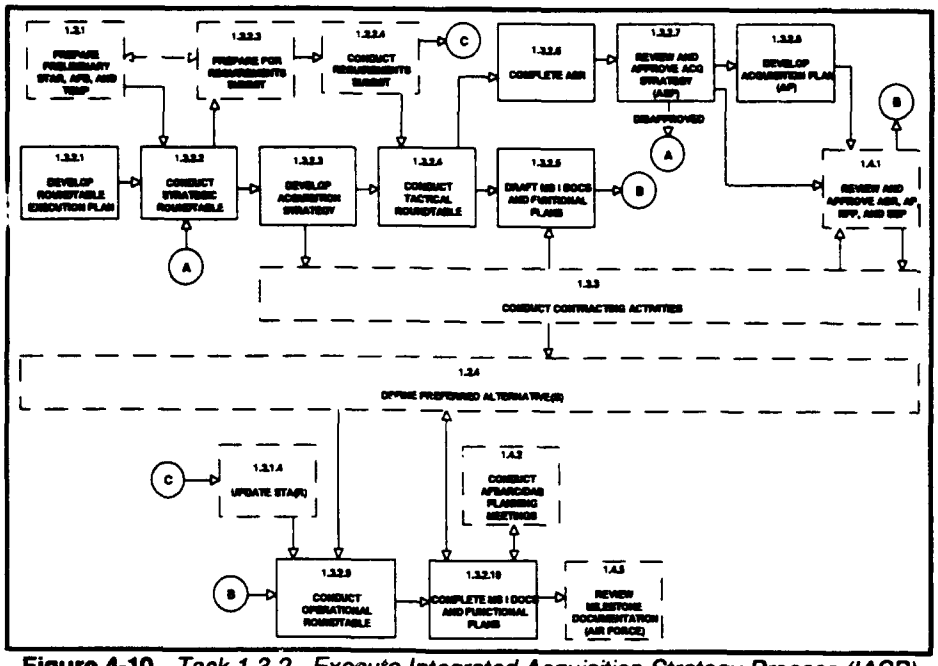

Figure 4-10. *Task 1.3.2 - Execute Integrated Acquisition Strategy Process (IASP)*

The acquisition strategy is developed (Task 1.3.2.3 of Figure 4-10) based on inputs and information from the senior experts who were members of the Strategic Roundtable of the IASP. These data, in addition to other gathered information, are used to develop the initial program/project acquisition strategy that is required to meet the Operating Command's needs with resource constraints. This step is complete when the PM has prepared the initial acquisition strategy and included it in the first draft of the ASR and AP. This strategy will be used by the Tactical Roundtable. The Tactical Roundtable (Task 1.3.2.4 of Figure 4-10) is conducted to summarize where the project is versus where it should be; to describe where the program is going and how it will get there; to identify project risk areas and plans for managing risk; to provide the basis for establishing explicit project cost, schedule and performance objectives. It will ultimately provide the project with a systematic approach to completing a successful ASP review with limited manpower. It is convened soon after the PM has prepared the first draft of the Integrated Program Summary (IPS) or ASR and 30 days before the Tactical Roundtable convenes. The roundtable will be documented within 10 working days following completion of the meeting.

The next step is the preparation of the draft Milestone (MS) I documents and functional plans

(Task 1.3.2.5 of Figure 4-10). The following documents are required for a MS I decision review:

	ACAT I	II	III	IV
ORD	X	X	X	X
STA(R)	X			
STA		X	X	X
IPS	X	X	X	X
Program Life Cycle Estimate	X	X	X	X
APB	X	X	X	X
TEMP	X	X	X	X
Component Cost Analysis (CCA)	X	X	X	X
COEA	X	X	X	X
Defense Intelligence Agency (DIA) Report	O			
Intelligence Report		O	O	
Joint Requirements Oversight Council (JROC) Report	O			
Integrated Program Assessment (IPA)	O	O	O	O
Independent Cost Estimate (ICE)	O			
Acquisition Decision Memorandum (ADM)	O	O	O	O

X: Prepared by Military Dept/PM O: Prepared by OSD Staff

Be aware that some of the functional plans identified below, that are required for MS reviews, are not directly reviewed by the Milestone Decision Authority (MDA), but rather used as supporting material:

Integrated Weapon System Master Plan (IWSMP)
Systems Engineering Master Plan (SEMP)
Systems Engineering Master Schedule (SEMS)
Risk Management Plan (RMP)
Program Protection Plan (PPP)
Integrated Logistics Support Plan (ILSP)
Pollution Prevention Action Plan (PPAP)
Nuclear Certification Plan (NCP) (if necessary)
Cost Analysis Requirements Document (CARD)
Program Management Plan (PMP) (may be used on nonmajor programs, but generally not used on major programs)
System Security Master Plan (SSMP)
Computer Resources Life Cycle Management Plan (CRLCMP)

The output to this step is the completion of the ASR (Task 1.3.2.6 of Figure 4-10) and the documentation needed by the MDA to determine if the results of Phase 0 warrant establishing a new acquisition program and approval to proceed with the Demonstration and Validation phase. The subsequent step in this task is for the ASP to review and approve the acquisition strategy (Task 1.3.2.7 of Figure 4-10). The ASP is held after the Tactical Roundtable and before the Operational Roundtable. The output of the ASP is an approved set of minutes and recommendations. The AP (Task 1.3.2.8 of Figure X) is a top level planning document focusing on the instant acquisition and its strategies. Contents from the ASR are used to help prepare, write, and finalize the AP. Common acquisition strategy paragraphs from the ASR should also be used in the AP. The AP is used to integrate the acquisition strategy in a single comprehensive, coordinated plan to fulfill the Government's needs. It also serves as a means for documenting the proposed strategy and obtaining senior level approval of that strategy. (Tasks 1.3.2.5, 1.3.2.6, 1.3.2.7, 1.3.2.8)

The Operational Roundtable (Task 1.3.2.9 of Figure 4-10) is a working group or a series of working groups designed to develop and "harmonize" the detailed functional plans and Milestone directed documentation. This is the "write the plans" portion of the IASP. Since most of the plans will come to the Operational Roundtable in draft form, this also provides and opportunity to "facilitate" completeness

the Operational Roundtable in draft form, this also provides and opportunity to "facilitate" completeness and to "harmonize" agreements between the participants as to the content of each document and between each document. A list of the MS I documents and functional plans is identified in one of the previous paragraphs to the task identified in Block 1.3.2.5. The output to the Operational Roundtable is a consistent plan for executing the next program phase that has been recorded in a set of documents and functional plans that are consistent with one another. The final step is to complete the MS I documents and functional plans (Block 1.3.2.10 of Figure 4-10) which have been received from the Operational Roundtable participants.

The key output is the documentation/information needed by the MDA to determine if the results of the Phase 0 warrant establishing a new acquisition program and approval to proceed with the Demonstration and Validation (Phase I). (1.3.2.10)

Task 1.3.3 - Conduct Contracting Activities

The tasks that involve contracting activities begin with the establishment and training of an RFP team (Block 1.3.3.1 of Figure 4-11). The RFP team will be responsible for the preparation, timeliness and quality of the solicitation. The following list of team members should be considered for the initial team:

*Program Manager
*Systems Engineering
*Financial Management
*Reliability/Maintainability
*Configuration/Data
*Contracting Officer/Buyer
*Lead MAJCOM Liaison
Clerical/Administrative Support
Contract Administration Office
*Environmental Management
Key Staff Liaison
Deputy Program Manager
Test and Evaluation
*Logistics/Supportability
*Manufacturing/Producibility
Quality Assurance
Civil Engineering
Support Command/Center Liaison (e.g., ATC, ALCs)
Joint Service Liaison (e.g., Navy, Army, etc.)
Computer Resources/Software Engineering
Other USAF activities (e.g., Labs, Test Centers, etc.)

* Denotes Typical Core Team Members

The next step is to identify potential industry players (Block 1.3.3.2 of Figure 4-11). This is accomplished by early exploratory discussion between the project team and industry. This is the beginning of establishing a source list. As soon as requirements are identified, the PM can put together a Commerce Business Daily (CBD) article that synoposizes the proposed acquisition. The output of the CBD article is the complete source list that identifies

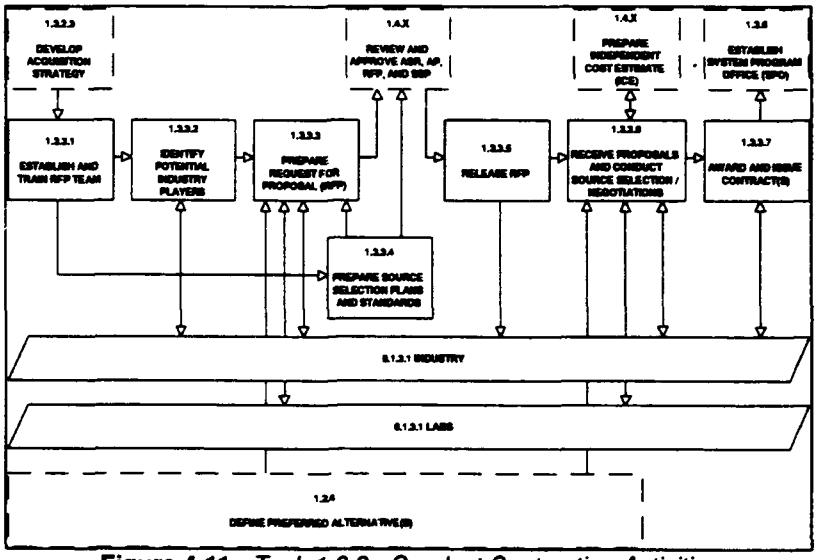

Figure 4-11. *Task 1.3.3 - Conduct Contracting Activities*

sent an RFP when it is ready for release to industry. The team will prepare a draft RFP and formal RFP for the purpose of transmitting the Government's requirements to industry (Task 1.3.3.3 of Figure 4-11). Upon completion of the RFP team's training and concurrent with the RFP preparation, the Source Selection Plan(s) (SSPs) and standards (Task 1.3.3.4 of Figure 4-11) will be written by the RFP team. These standards must be completed prior to release of the RFP. Both the SSP(s) and the standards must be approved by the Source Selection Authority (SSA) prior to release of the RFP. The RFP uses information from the SSP(s) and standards to build a successful RFP (Tasks 1.3.3.1, 1.3.3.2, 1.3.3.3, 1.3.3.4).

The release of the RFP (Task 1.3.3.5 of Figure 4-11) cannot occur until the applicable reviews and/or documentation, identified below, have occurred or been received; and the SSP (if required) and the AP have been approved.

Solicitation Review Board (SRB)
Source Selection Management Group (SSMG) (if competitive)
Source Selection Advisory Council (SSAC)SSA approval of the RFP release (if competitive)
Assistant Secretary of the Air Force for Acquisition (SAF(AQ)) (ACAT I programs/projects)
Under Secretary of Defense for Acquisition (USD(A)) (for ACAT I programs/projects)
Signed Program Executive Officer (PEO) (if assigned) release letter

The source select ı process begins (Task 1.3.3.6 of Figure 4-11) when the RFP is released to industry. For competitive acquisitions, the source selection process ends when the source selection authority determines the awardee of the contract. For non-competitive acquisitions, the process is complete at the conclusion of negotiations. The contracting activities are complete with the award and issue of the legally binding contract(s). The contract(s) should clearly reflect the agreement of the parties and woll be consistent with current law, regulation and policy. It will consist of Sections A through J of the RFP that have been amended as negotiated between the parties or as amended during the source selection process.

Task 1.3.4 - Assign Lead and Support Centers (AFMC)

This task begins with the receipt of the Milestone I PMD from HQ AF/XOR. Tasking may also come from the ORD, verbal requests, or an AFMC internal realignment activity and its resultant documentation. The AFMC Mission Assignment Process will ensure that all the taskings that come into the command are accomplished by the most capable and qualified organization. This will ensure that our customers are provided with quality service, quality products, timely response to customer needs, best value to the customer and the command by using our most qualified and appropriate resources, and consistency. The task is complete when AFMC/XP assigns the new mission task, via a New Mission Assignment Notification Letter, to one of the Command Centers of excellence for execution. A notification package to Congress explaining the rationale for the decision may also be appropriate. The New Work Review Process is the internal allocation process that is presently being used by the Aeronautical Systems Center (ASC) (Task 1.3.4 of Figure 4-8).

Task 1.3.5 - Assign Lead and Support Organizations (Centers)

This task begins either when a letter of assignment is received from the Air Force Materiel Command Mission Assignment Process, an assignment of a Lead and Support Center (AFMC) by way of ASC/CC, or when any work that enters an Acquisition Organization is in excess of the organization's Directed Mission, Workload Baseline, or Manpower Baseline. The first step requires the acquisition organization to evaluate the new work for "appropriateness." If the work is rejected, the rationale for rejection is documented and it is returned to the Command Section for disposition. This package is either returned to the customer, explaining the reason for return, or submitted to the Corporate Level Review portion of the process. The process begins by activating the Caretaker (ASC/CYN) to assemble a working group of

the affected organizations. Unresolved issues and recommended solutions are forwarded to the Command Section. Here there is either a "Task Go Ahead" or the package is returned to the customer with an explanation of the unresolvable issue(s). This task is complete when the Acquisition Organization accepts the new work, the ASC Command Section accepts the Notification of New Work from the Acquisition Organization, a Task Go Ahead is issued from the Command Section or ASC Council or when a System Program Office (SPO) has been established (Task 1.3.5 of Figure 4-8).

.Task 1.3.6 - Establish System Program Office (SPO) (Lead Center)

This task begins with the formal establishment of a SPO that occurs after a successful Milestone I/IV decision. At this point the SPO cadre expands into an existing or new SPO to accomplish all the tasks and activities required during the remaining phases of the acquisition. The direction to start may be derived from either a PMD tasking, an Acquisition Decision Memorandum (ADM) issued after a Defense Acquisition Board (DAB), a decision by the Center Commander, or a directive from the Commander Air Force Materiel Command (AFMC/CC). Inputs to establishing the SPO include the direction, funding, and the correct number of personnel in the required functional areas as well as the correct number of experienced personnel who are required to perform the program tasking (Task 1.3.6 of Figure 4-11). The establishment of the SPO is followed by and in conjunction with the contracting activities wherein a contract award is made and the contract is issued to industry.

TASK 1.4

Review and Approve a Program

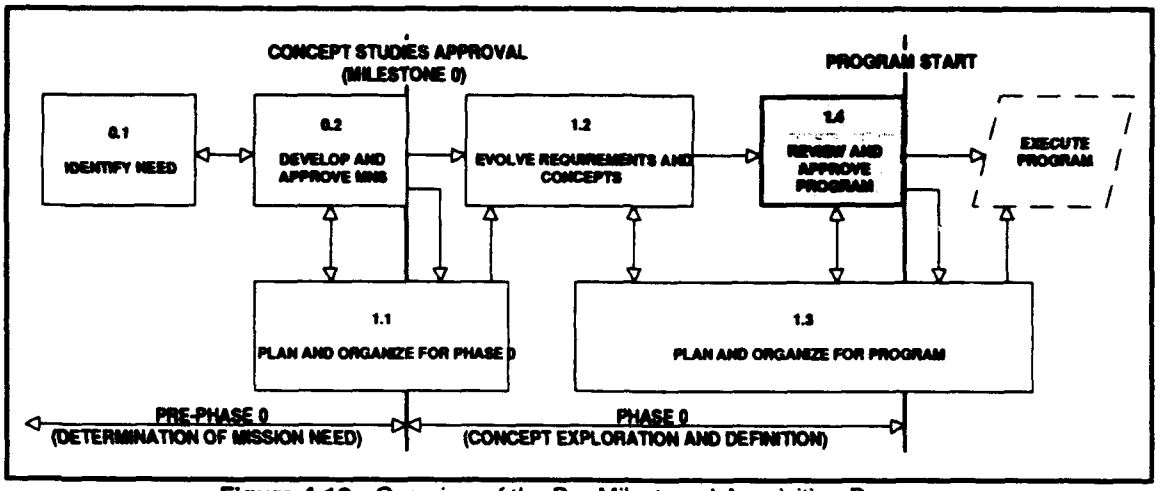

Figure 4-12. *Overview of the Pre-Milestone I Acquisition Process*

Summary

Entrance into Task 1.4 begins with events from Task 1.2 (Evolve Requirements and Concepts) where many of the up-front alternatives are explored. A Cost Operational Effectiveness Analysis (COEA) and Program Objective Memorandum/Budget Estimate Submission (POM/BES) have been prepared and updates to these documents have been fed into this task. Task 1.3 (Plan and Organize for Program) also flows into this task. Many of the key documents, e.g., System Threat Analysis (Report) (STA(R)), Acquisition Program Baseline (APB) and Test and Evaluation Master Plan (TEMP) are developed here.

The purpose of this task is to initiate and complete directed reviews and approvals of the proposed program and to determine if the results of the Phase 0 activities warrant a new acquisition program. Additionally, the objective is to establish the initial program cost, schedule, and performance objectives. Up to this point, a potential program has evolved requirements with the Operating Command and has developed alternative system concepts to meet them. Key documents, like the COEA, POM/BES and a Milestone I Program Office Estimate (POE) have been prepared. The System Program Office (SPO) cadre has probably already been formed and planning is well underway for transitioning the cadre into a self-sufficient SPO. The STA(R), APB, and TEMP are being prepared. The Acquisition Strategy Report (ASR), which has been prepared by the development and user community, will pass through several reviews. The acquisition strategy will be formulated and approved. Preparation of the acquisition plan (AP), Source Selection Plan (SSP), and Request for Proposal (RFP) will occur. When all the required approvals are received, a Request for Proposal (RFP) can be issued and the award of one or more contracts will follow.

The more detailed tasks outlined in Figure 4-13 only briefly describe all the processes referred to in the Task 1.4 data flow chart. This figure indicates the sequence in which tasks (indicated by the chart task number) should typically occur. Consult the pertinent data sheet in Appendix D for specific details of any particular task. Each data sheet is identified by its Task Breakdown Structure (TBS) number which is identified in parentheses at the end of each subtask paragraph.

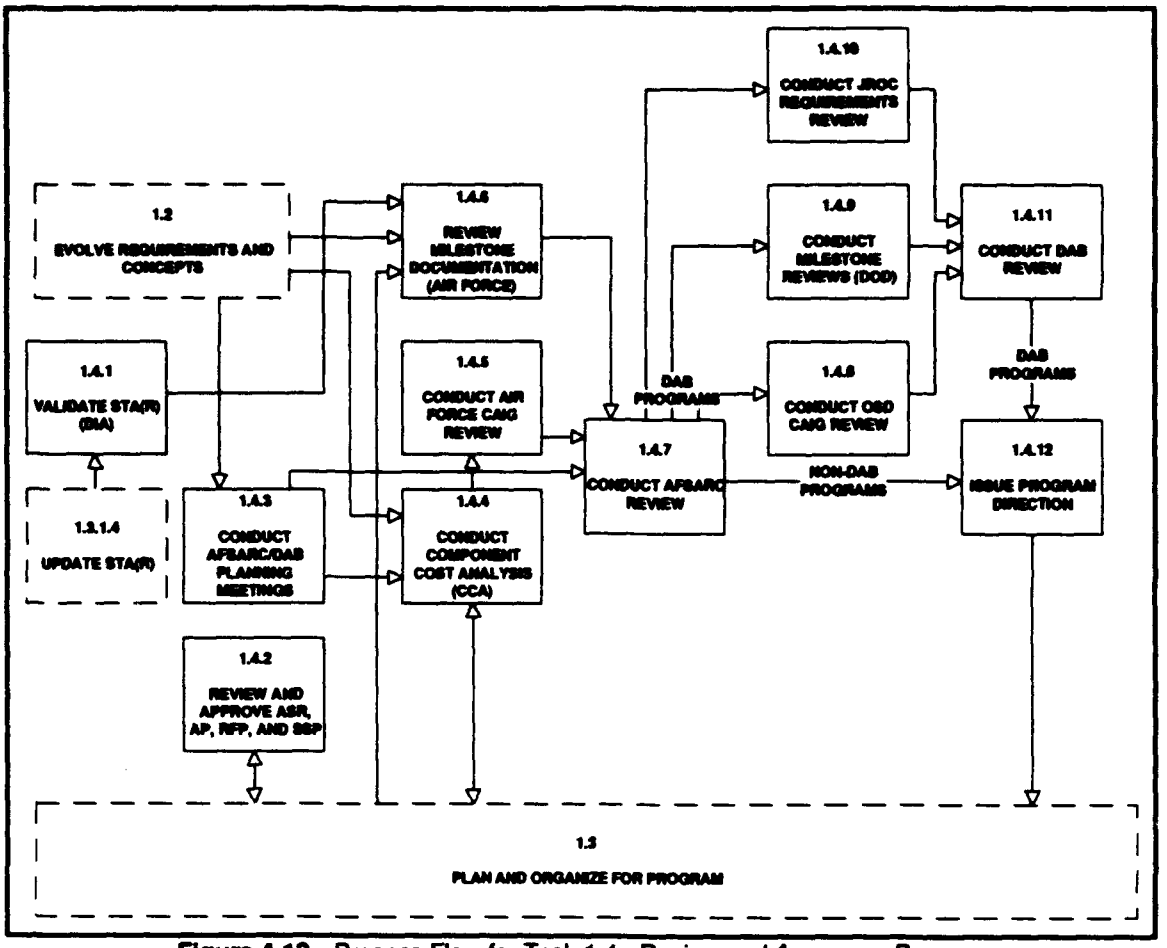

Figure 4-13. *Process Flow for Task 1.4 - Review and Approve a Program*

Sub-Tasks

Task 1.4.1 - Validate STA(R) Defense Intelligence Agency (DIA)

This task begins after the National Air Intelligence Center (NAIC) completes the STA(R). The DIA subsequently validates the STA(R) for Acquisition Category (ACAT) I projects. In instances other than ACAT I projects, the System Threat Assessment (STA) is approved by HQ USAF/IN. The Air Force Intelligence Support Agency (AFISA) normally briefs the contents of this document to the Defense Acquisition Board (DAB) without discussion with the NAIC. The process involves the forwarding of threat documents, by the DoD Component, to the DIA. Joint programs require joint coordination through the participating services. The DIA will review and validate based upon the intended use of the document to support the system acquisition. It will stress appropriateness of the judgments, consistency with existing intelligence positions, and logic of extrapolations from existing intelligence. When DIA requires changes or justification to the STA(R), HQ USAF/IN will forward a letter to the DIA certifying that changes have been made or provide a written reclama with justification to remain as is. STA(R)s are developed only for the preferred concept studied in Phase 0. A DIA validated STA(R) is required to support a program Milestone I decision. In addition to reviewing and validating the STA(R), a DIA Intelligence Report will be prepared by the DIA and submitted to the Under Secretary of Defense for Acquisition (USD(A), the Joint Requirements Oversight Council (JROC), the Component Acquisition Executive (CAE), the Program Executive Officer (PEO) and the Program Manager (PM). This task ends when the threat contents in the

STA(R) have been reviewed and validated by the DIA for inclusion in the Milestone I data package (Task 1.4.6 of Figure 4.13).

Task 1.4.2 - Review and Approve ASR, AP, RFP, and SSP

This task begins when the lead Operating Command forwards the ASR, AP, RFP and SSP to the SAF/AQ for review. The ASR provides the plan of attack for the project/program which was developed by the development and user community. The status of the aforementioned documents at this point in time is as follows:

- The ASR has been reviewed and approved by the Acquisition Strategy Panel (ASP).

- The RFP, which was developed by the RFP team, should have completed all reviews and be ready for final release.

- The AP, which was developed with inputs from the ASP's approved ASR and the RFP, should be ready for review.

- The SSP has been developed by the RFP team and is ready for review.

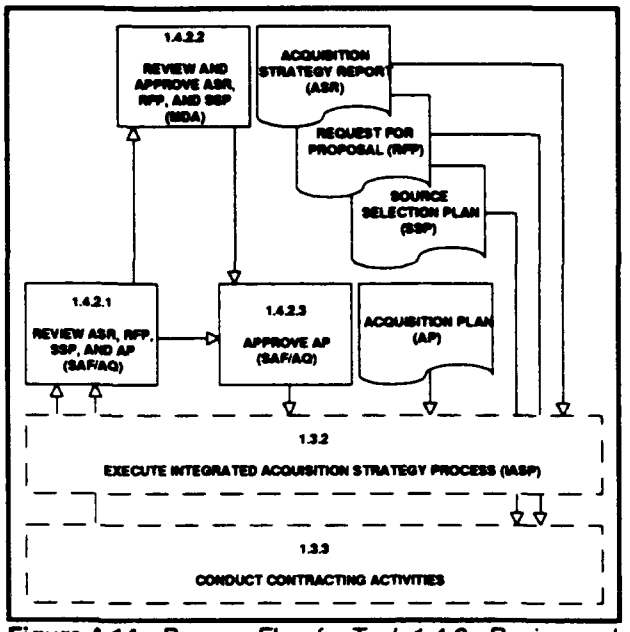

Figure 4-14. *Process Flow for Task 1.4.2 - Review and Approve ASR, AP, RFP, and SSP*

The review cycle consists of the following:

- The Air Force Acquisition Executive (AFAE) will review the ASR and the proposed RFP for ACAT I programs.

- All documents are sent to the USD(A) for review and approval.

- After the USD(A)'s review and approval of the ASR, the SSP, and the RFP, all the documents are sent to the SAF/AQC.

-- SAF/AQC will send the approved documents (which includes the approved AP) to the AFAE for review and release.

This sequencing of events allows the AFAE the opportunity to review and comment on the ASR and RFP prior to being reviewed by the final Milestone Decision Authority (MDA) (Task 1.4.2.2 of Figure 4-14) for ACAT I programs. An approval of the ASR and resultant favorable review of the RFP and SSP by the USD(A) will cause the entire package to be returned to SAF/AQC (Task 1.4.2.1 of Figure 4-14). SAF/AQC will send it to the AFAE for final approval of the AP (thus incorporating any changes). The process is concluded with USD(A) approval of the ASR, USD(A)'s favorable review of the RFP and SSP (Task 1.4.2.2 of Figure 4-14), and SAF/AQ's approval of the AP (Task 1.4.2.3 of Figure 4-14). Approval of the AP allows the program office to begin the formal solicitation process which starts with the release of the RFP.

Task 1.4.3 - Conduct Air Force Systems Review Council (AFSARC)/DAB Planning Meetings

This task consists of two planning meetings which are held at least 180 days prior to the DAB milestone review. These meetings will assess the program progress toward satisfying exit criteria and minimum required accomplishments and the readiness of the program to proceed into the next acquisition phase. The flow of information is the same for both meetings -- the AFSARC/DAB Planning Meeting and the DAB Planning Meeting. Information required for these meetings consists of the following: Cost Analysis Requirements Document (CARD); a proposed Integrated Program Summary (IPS) outline; the status of progress toward satisfying exit criteria as defined in the Acquisition Decision Memorandum (ADM) from the previous Milestone Decision; the status of progress toward satisfying the minimum required accomplishments as defined in DoDI 5000.2, Part 3; any potential issues, a schedule of effort to be accomplished to allow the program to proceed to the DAB; and the current program status. The resultant documentation is a Major Issues Guidance (MIG) memorandum (Committee Memo), a master planning calendar and an Independent Cost Estimate (ICE).

Task 1.4.4 - Conduct Component Cost Analysis (CCA)

This task begins when the completed CARD is used as input data to the CCA. This information which includes the project as currently planned and all cost categories, i.e., investment, appropriation, test and evaluation, procurement, military construction, operation and maintenance, and military personnel is used by the CCA team to develop the CCA report. The draft CCA will be provided to the Cost Analysis Improvement Group (CAIG) no later than 51 calendar days in advance of a scheduled DoD component milestone or project review. The results will eventually be used when the AFSARC review is convened to review ACAT I acquisition programs prior to a Milestone Decision being made by the DAB or prior to a program review by the Secretary of Defense. Note: The AFSARC functions as the DAB for all Air Force programs that are less than ACAT I. All three reviews are similar, although at different levels of review. Each review looks at all the program documentation necessary for a program decision to go ahead or for the continuance of an existing program.

Task 1.4.5 - Conduct Air Force CAIG Review

This task begins when the AFSARC scheduling group schedules an AFSARC review. This activity starts the preliminary activities on the CAIG. Cost information in the form of the CCA (formerly known as the ICE), CARD, POE and COEA are necessary for the CAIG review. Preparation for the CAIG review is accomplished through both planning meetings and status reviews which are convened to ensure that all information needed during the formal CAIG review is accomplished on schedule and with the required quality. The result of the review is the CAIG's development of the Air Force cost position (SCP). This reflects the position of the Secretary of the Air Force. This, in turn, provides approval to submit the COEA, CCA and POE to the AFSARC.

Task 1.4.6 - Review Milestone Documentation (Air Force)

This task begins with receipt of draft documentation to include the Operational Requirements Document (ORD); the STA(R), the Intelligence Report; the IPS, the Program Life Cycle Cost Estimate (PLCCE), the APB*; the TEMP*; the ICE*; the COEA, the Pollution Prevention Action Plan (PPAP); and the Program Protection Plan (PPP) by the AFSARC Executive Secretary. This documentation must be received at least 24 days prior to the planned AFSARC meeting. The meeting, which is chaired by the AFSARC Committee Chair (or a representative), will include representatives of the Committee principals and will be held approximately 10 calendar days before an AFSARC review. Review of the identified documentation serves as a vehicle for identifying and reviewing major questions raised by the draft documentation pertaining to program technical content and risks, cost-effectiveness, threat, acquisition

strategy, supportability and producibility, test plans and results, and status since the planning meeting. The product of the documentation review is a Committee Memo (prepared within 5 days of completion of the review) to the AFAE from the Committee Chair.

*Required by Congress.

Task 1.4.7 - Conduct AFSARC Review

This task begins with all necessary documentation being prepared. For ACAT I programs, the AFSARC is normally held 5 weeks prior to the DAB review. Other AFSARC meetings will be held as determined by the AFAE. The sponsoring member is responsible for ensuring that the AFSARC is scheduled for those programs (identified as non-DAB programs) which require only the AFSARC review. The documentation requirements are the same as for a milestone review. See Figure 4-15 for list of documentation.

ACAT I	ACAT II, III, IV
ORD	ORD
STAR	STA
DIA INTEL REPORT	COMPONENT INTEL REPORT
JROC ASSESSMENT	N/A
IPS	IPS
IPA	IPA*
PLCCE	PLCCE
APB	APB*

Figure 4-15: *Documentation Needed for AFSARC Review*

The AFSARC process implements DoDI 5000.2, Section 11-C, for AFAE review of ACAT I programs, any joint program for which the Air Force is the lead, and ACAT II-IV programs as determined by the Secretary of the Air Force (SAF) or the AFAE. The AFSARC is convened to review programs prior to any milestone decision by the DAB or prior to a program review by the Secretary of Defense. It is the Air Force review process which reviews all program documentation prior to going to the DAB. The AFSARC functions as the DAB for all Air Force programs that are less than ACAT I. The AFSARC is held in addition to both the Summit and the DAB process. All three of these reviews do essentially the same thing at different levels of review. Each review looks at all the program documentation in order to make a decision for either a program go ahead or continuance of an existing program. The result of this review for non-DAB programs is the AFSARC sponsoring member will prepare an ADM for the AFAE signature within 5 working days. For DAB programs the sponsoring AFSARC member will update the IPS to include AFSARC findings, coordinate within the Air Staff, and provide it to the Defense Acquisition Executive (DAE) within 10 working days.

*Required by Congress.

Task 1.4.8 - Conduct OSD CAIG Review

This task begins when the Air Force Cost Analysis Improvement Group (AFCAIG) reviews all the CCAs, the CARD, the POE, and the SCP. The AFCAIG advises the Assistant Secretary of the Air Force for Financial Management (SAF/FM) on their technical adequacy, validity, and reasonableness. CCAs must be reviewed by the CAIG prior to the AFCAIG review. Additionally, the POE and CCA must be approved by the Component Secretary before submission to Office of Secretary of Defense (OSD). The review of these documents will determine whether cost estimating deficiencies exist in these estimates or the associated documentation. The AFCAIG also validates the methodologies used to make the estimates and determines if additional cost studies are required. These estimates are used by the OSD CAIG to develop its estimate of the program life cycle costs. The CAIG review occurs after the Documentation Review but not later than 21 days before the DAB. The resultant OSD CAIG estimate, along with the OSD CAIG's test for reasonableness of the POE, CCA, and SCP, is included in the DAB Committee's Integrated Program Assessment (IPA).

Task 1.4.9 - Conduct Milestone I Reviews

This task begins with receipt of the draft documentation shown in Figure 4-16, by the DAB Executive Secretary, at least 45 days prior to the planned DAB Committee meeting.

This review serves as the single OSD meeting for identifying and reviewing major questions raised by the draft documentation and any new program developments since the planning meeting in preparation for the DAB for ACAT I programs. It includes a presentation of the program technical content and risks, cost effectiveness, threat, acquisition strategy, supportability and producibility, test plans and results and a status update since the planning meeting. The results of the Documentation Review are documented in the Guidance Update Memorandum (GUM). This is prepared within 5 days after the review and submitted to the DoD Component Acquisition Executive by the Committee Chair. Any adjustments to the final documents, which may have been identified in the documentation review, must be submitted in final form, under the signature of the AFAE, to the DAB Executive Secretary no later than 10 days prior to the DAB Committee Review. See Task 1.4.9.2 of Figure 4-6.

ORD	APB*
STA(R)	IPS
Intel Report	TEMP*
COEA	ICE*
PLCCE	PAP
PPP	

*Required by Congress.

Figure 4-16. *Milestone Review Documentation*

The OSD Committee Review will follow; however, it cannot begin until the project manager's report on the elements to be addressed for a milestone review is available. This includes a Committee Memorandum documenting the results of the Documentation Review signed by the Committee Chair; final documentation with a Cover Memorandum Signed by the DoD Component Acquisition Executive (includes the IPS and associated annexes as well as other required stand-alone documentation) and DoD assessments. This review is concluded when an independent assessment has been completed and documented in an IPA and Committee Memorandum for DAB review (Task 1.4.9.3 of Figure 4-17).

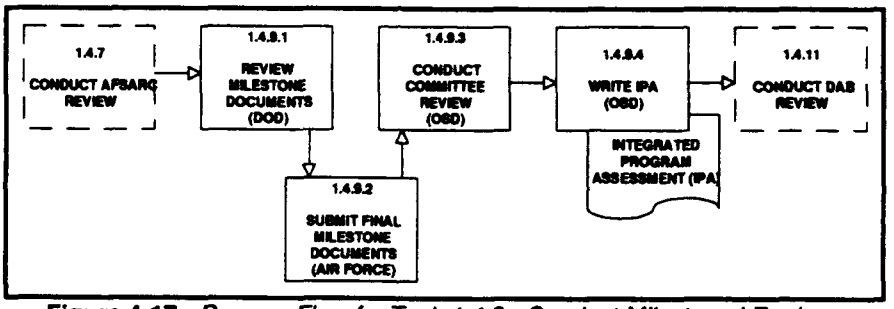

Figure 4-17. *Process Flow for Task 1.4.9 - Conduct Milestone I Reviews*

The committee staff specialist will provide committee members documentation at least 10 days prior to the review. The Committee Executive Secretary will provide a read ahead (Blue Book) (covering the documentation listed in Figure 4-18 which is identified in DoDI 5000.2, Part 13, Section B) to all committee members at least 2 working days in advance of the Committee review identifying the issues to be discussed at the review. This Blue Book includes inputs from the DoD Component and OSD offices and addresses topics which need to be reviewed prior to a Milestone I decision.

IPS
APB
DoD(C) Financial Status Assessment
DIA Intelligence Report
PA&E Affordability Assessment
PA&E Cost & Operational Effectiveness Analysis (COEA) Assessment
PA&E CAIG Assessment
Joint Requirements Oversight Council (JROC) Assessment (if available)
Development Test & Evaluation (DT&E) Assessment
Operational Test & Evaluation (OT&E) Assessment
DUSD(IP) Cooperative Opportunity Assessment
FM&P HSI Assessment
P&L Producibility and Industrial Base Assessment
P&L Supportability Assessment
P&L Environmental Assessment

Figure 4-18. *Documentation Needed for OSD Committee Review (Milestone I)*

This process ends when sufficient information is available to complete an independent assessment which will be documented in an IPA. The IPA documents OSD's independent assessment of the potential program. It follows the format of the IPS. The IPA and a memorandum which will be submitted to the DAB Chair, should be prepared by the Committee staff specialist within 5 days after the Committee review for Milestone I (See Task 1.4.9.4 of Figure 4-17).

The IPA is forwarded with a memorandum to the DAB members. The next step begins when the when the OSD Committee Review is complete and recommendations are available to document the IPA (Tasks 1.4.9.1, 1.4.9.2, 1.4.9.3, 1.4.9.4).

Task 1.4.10 - Conduct Joint Requirements Oversight Council (JROC) Requirements Review and Validation

This task begins after completion of the AFSARC review and upon receipt of the draft APB. This occurs no less than 59 calendar days prior to a scheduled DAB review. The input from the AFSARC is either an ADM for non-DAB programs or an updated IPS for DAB programs. All the documents identified for a AFSARC review are also required. See Task 1.4.7 and Figure 4-15 for a complete list. The review ensures that performance objectives and thresholds that are in the draft APB provide a capability that will satisfy the mission need. Since these objectives are derived from the ORD and the results of the COEA, the program sponsor ensures the briefing reviews the Mission Need Statement (MNS), identifies the related threat and describes how the proposed performance objectives and thresholds will satisfy the mission need. The JROC provides its recommendations, via a written assessment, to the DAB (Task 1.4.10).

Task 1.4.11 - Conduct DAB Milestone Review

This task is the last major review which will occur to a project as part of the review and approval cycle of a project. Its purpose is to allow the Milestone Decision Authority (MDA) to decide whether or not a

project should proceed into Phase I, Demonstration and Validation. The focus is on the OSD Committee Chair's summary of the issues and recommendations from the OSD Committee Review. The data necessary for the DAB review consists of the Read Ahead (also termed Blue Book) which includes pertinent project documentation and briefings and the IPA . The IPA documents the issues and recommendations of the OSD Committee Review. The DAB will focus on issues, affordability, alternative, trades, and exit criteria. The Program Manager can recommend alternatives to be pursued. The DAB recommends to the USD(A) whether or not a program should be granted demonstration/validation/major modification approval. The result of this review is an approved ADM which approves the initiation of a new program for entry into Phase I, approves the proposed or modified acquisition strategy (and Concept Baseline for Phase I), establishes program specific exit criteria that must be accomplished during the Phase I/modification and identifies affordability constraints derived from the planning, programming and budgeting system (Task 1.4.11).

Task 1.4.12 - Issue Program Direction

This task begins when the ADM has been issued by the MDA.. Upon receipt of the ADM from the MDA (Task1.4.12.1 of Figure 4-19), the appropriate Air Staff Office Program Element Monitor (PEM) or designated office of responsibility will write and issue a Program Management Directive (PMD) Task 1.4.12.2 of Figure 4-19). A PMD will not be issued unless the program has planned funding or has prior year funding which is identified in the President's Budget and the Future Years Defense Program (FYDP). Also, the program must have at least one validated requirements document, e.g., MNS or ORD. The PMD is coordinated with all major command level organizations tasked with direction prior to being coordinated throughout the headquarters. The PMD will direct programmatic responsibilities to major command, field, and test organizations for systems development, modification, or acquisition in broad terms. All Air Force acquisition programs are required to have a complete and current PMD (Task 1.4.11, 1.4.12.2).

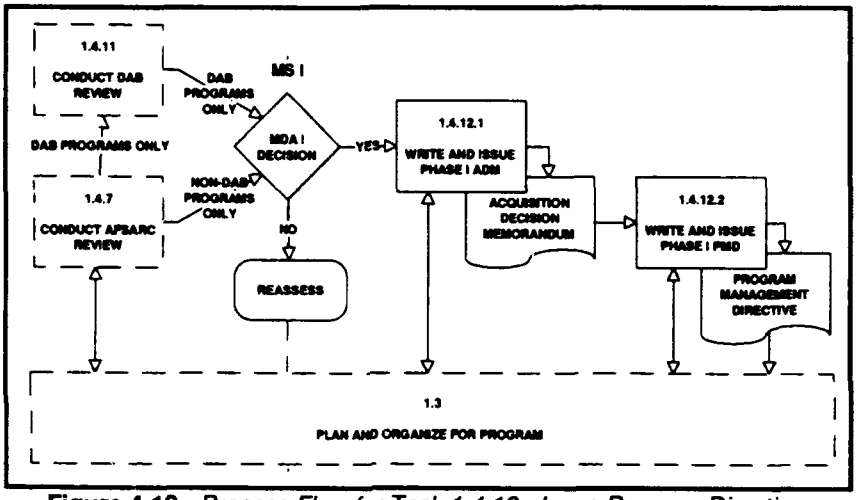

Figure 4-19. *Process Flow for Task 1.4.12 - Issue Program Direction*

APPENDIX A

GLOSSARY OF TERMS

NOTE: The purpose of this glossary is to help the reader understand some of the terms used in this process guide. It is not intended to encompass all terms relating to the acquisition process. For standardized definitions and terms for Department of Defense and Air Force use, refer to Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 1 May 1988, and AFM 11-1, *Air Force Glossary of Standardized Terms*.

Acquisition - The process for obtaining systems, equipment or modifications to existing inventory items.

Acquisition Categories (ACATs) - DOD acquisition programs, both major and nonmajor, are classified into one of four acquisition categories (ACATs). These categories determine the level of review, decision authority, and applicable procedures. These categories are similar to those used by the Navy for a number of years.

ACAT ID - The primary criteria is $300M Research Development Test and Evaluation (RDT&E), $1.8B Procurement (FY90 constant $). Milestone Decision Authority (MDA) for these programs is the Under Secretary of Defense for Acquisition (USD(A)). The Milestone review forum is the Defense Acquisition Board (DAB).

ACAT IC - The primary criteria is $300M RDTE, $1.8B Procurement (FY90 constant $). Milestone Decision Authority (MDA) is delegated by the USD(A) to the DoD Component Head. Decision authority may be delegated no further than the Service Acquisition Executive (SAE). The Milestone review forum is the Air Force Systems Acquisition Review Council (AFSARC).

ACAT II - The primary criteria is approximately $115M RDT&E, $540M Procurement (FY90 constant $). Milestone decision authority is delegated no lower than the DoD Component Acquisition Executive.

ACAT III - High visibility, special interest programs. This category would not have dollar thresholds. Programs are assigned to this category based on their overall importance, degree of risk involved, and need for higher management visibility and decisionmaking as determined by each DoD Component SAE. The level of decision authority for this category may include Program Executive Officers (PEOs) and the commanders of the Military Department logistics, systems, and materiel commands as determined by the Component SAE.

ACAT IV - This category would include those acquisition programs not otherwise designated as **ACATs I, II or III**. The level of decision authority for programs in this category shall be at the lowest level deemed practicable by the Component SAE.

Acquisition Decision Memorandum (ADM) - A memorandum signed by the Milestone Decision Authority (MDA) that documents the decision made and the exit criteria established as the result of a milestone decision review or in-process review.

Acquisition Executive System - The AFAES is a management system with the underlying principle that program management authority and responsibility must be placed at the lowest level. At the same time, the AFAES establishes accountability and provides visibility for the Air Force Acquisition Executive to oversee and guide Air Force programs. Key to the effectiveness of this system is a timely and unrestricted information flow among the Air Force Acquisition Executive - Program Executive Officer - Program Director (AFAE - PEO - PD) and appropriate accountability at all levels of the system.

Acquisition Life Cycle - Five phases, each preceeded by a milestone or other decision

point, during which a system goes through research, development, test and evaluation and production. The phases are (1) Concept Exploration & Definition, (2) Demonstration & Validation, (3) Engineering & Manufacturing Development, (4) Full Rate Production & Deployment, and (5) Operations Support.

Acquisition Logistics - Process of systematically identifying and assessing logistics alternatives, analyzing and resolving logistics deficiencies, and managing integrated logistics support throughout the acquisition process.

Acquisition Managers - Persons responsible at different levels for some activity of developing, producing and fielding a weapon system. Includes senior level managers responsible for ultimate decisions, program managers, and commodity or functional area managers.

Acquisition Plan (AP) - A document which identifies milestones and addresses all technical, business and other significant management considerations that will control the acquisition. It is the principal written management document used to support the contracting process. It records program decisions, contains the requirement, provides appropriate analysis of technical options and the life cycle plans for development, production, training and support of material items. Required by the Federal Acquisition Regulation (FAR).

Acquisition Planning - The process by which the efforts of all personnel responsible for an acquisition are coordinated and integrated through a comprehensive plan for fulfilling the need in a timely manner and at a reasonable cost. It is performed throughout the life cycle and includes developing an overall acquisition strategy for managing the acquisition and a written acquisition plan.

Acquisition Program - A directed effort funded either through procurement appropriations, through the Security Assistance Program, or the Research Development Test & Evaluation (RDT&E) appropriation with the goal of providing a new or improved capability in response to a validated need. An acquisition program may include either development or procurement of system, subsystems, equipment, munitions, or modification to them, as well as supporting equipment, systems, projects, and studies. Excluded from this definition and from the regulation are general purpose, commercially available automatic data processing assets.

Acquisition Program Baseline (APB) - Documents the cost, schedule, and performance baseline agreement between the milestone decision authority and project team or designated component official.

Acquisition Risk - The chance that some element of an acquisition program produces an unintended result with an adverse effect on system effectiveness, suitability, cost, or availability for deployment.

Acquisition Strategy - A business and technical management approach designed to achieve program objectives within the resource constraints imposed. It is the framework for planning, directing, and managing a program. It provides a master schedule for research, development, test, production, fielding, and other activities essential for program strategies (e.g., Test and Evaluation Master Plan, Acquisition Plan, competition, prototyping, etc.)

Acquisition Strategy Panel (ASP) - The ASP reviews the integrated program acquisition strategy for realism, flexibility, risk, responsiveness to the user, overall balance, and executability. It approves or recommends approval of the acquisition strategy and commitment of resources to the appropriate decision authorities. The ASP will not review implementation details (e.g., contract terms and conditions). These details are the Program Office staff responsibility. The ASP will be comprised of Strategic and Tactical Roundtable (see IASP) members selected by the Cognizant Program Decision Authority and the Center/Laboratory Commander who will jointly chair the ASP.

Acquisition Strategy Report (ASR) - Describes the acquisition approach to include streamlining, sources, competition, and contract types throughout the period from the beginning of Phase I, Demonstration and Validation, through the end of production. As part of the Integrated Program Summary (IPS), it summarizes the entire planned program structure.

Action Officer - The person responsible for taking action on a project, for coordination of all staff activities, and assembling the action package for decision by higher authority.

Advanced Technology Transition Demonstrations - Projects within the 6.3A program which are intended to: (1) reduce risk by proof of principle demonstrations in an operational environment; (2) significantly enhance capabilities or cost effectiveness; (3) permit potential user (operator) participation in the program; and (4) be large enough ($10 - 100 million) to provide a significant database.

Affordability - A determination that the life-cycle cost of an acquisition program is in consonance with the long-range investment and force structure plans of the Department of Defense or individual DoD Components.

AFMC Mission Assignment Process - Established to ensure all the taskings which come into the command are accomplished by the most capable and qualified organization. This process is in the early stages of evolution. The draft is dated 10 Feb 93 and does not yet have a Policy Directive numerical identifier.

Air Force Acquisition Model (AFAM) - Acquisition model/database, that represents the AF Acquisition process from pre-milestone 0 to post deployment. It links processes and activities to factual program data and expert comments. The AFAM software is an AFMC managed, PC-based, acquisition management tool which describes the basic system acquisition process down to a practical level of definition. Information can be assessed related to task descriptions, references, lessons learned, best practices, nominal timeline, etc. The software is available at no charge to requesting Government organizations. POC is ASC/CYML, DSN 785-3454.

Air Force Planning Guidance (AFPG) - Results of the Air Force Defense Planning are published in the AFPG in the summer of even-numbered years. It includes a summary of the Air Force executive guidance, fiscally-constrained force structure levels and assessments of forces. The AFPG provides the link between Defense Planning Guidance (DPG) planning priorities, fiscal reality and potential Air Force programs. The AFPG provides the strategic inputs to the Mission Area Assessment "strategy-to-task" process.

Air Force Systems Acquisition Review Council (AFSARC) - The Air Force corporate body that advises the Air Force Acquisition Executive (AFAE) on matters concerning initiation, continuation, or substantial changes to major defense program.

Alternatives - A choice limited to one of two or more possibilities. Can be called an option.

Approved Programs - The technical and operational, schedule, and quantity requirements reflected in the latest approved Acquisition Decision Memorandum and Decision Coordinating Program or in any other document reflecting a more current decision of the Secretary of Defense or other appropriate approval authority (such as the President's budget and supporting documentation). Changes being considered and reflected in Program Planning and Budgeting System memoranda, such as Program Objective Memorandums (POMs), Program Decision Memorandums (PDMs), and Program Budget Decisions, may not be reported until approved and included in the President's budget.

Assessment Report - The report generated by an independent assessment of a major system during any phase of the acquisition and support process to provide an examination and evaluation of technical requirements, status toward achievement of those requirements, identify problems and problem causes and make recommendations for correction.

Automated Lessons Learned Capture and Retrieval System (ALLCARS) Software - Database of lessons learned maintained by ASC/CYM at Wright-Patterson AFB OH. See Lessons Learned Database.

Automated Test Planning System (ATPS) - A software program developed by OSD that aids in the review of a test and evaluation master plan prior to submittal to OSD for approval.

Award - Notification to bidder of acceptance of bid.

Baseline - Defined quantity or quality used as starting point for subsequent efforts and

progress measurement. See Performance Measurement Baseline. Can be program baseline, technical baseline or cost baseline.

Baseline Concept Description (BCD) - Documents Concept configurations and used as a basis to assess each concept for Mission Need Statement (MNS) satisfaction.

Baseline Cost Estimate - A detailed estimate of acquisition and ownership costs normally required for high level decisions. This estimate is performed early in the program and serves as the basepoint for all subsequent tracking and auditing purposes.

Best and Final Offer (BAFO) - Upon completion of discussions during a conventional source selection, the contracting offices shall issue to all offerors still within the competitive range a request for best and final offers. Following evaluation of the BAFOs, the Source Selection Authority (SSA) shall select that source whose BAFO is most advantageous to the Government.

Biennial Planning Programming Budgeting System (BPPBS) - See PPBS

Budget - A plan of operations for a fiscal period in terms of (a) estimated cost, obligations, and expenditures; (b) source of funds for financing including anticipated reimbursements and other resources; and (c) history and work load data for the projected programs and activities.

Budget Activity - A budget activity is a major subdivision of a budget appropriation, generally in mission areas. It records estimates for a component function or activity to be funded by the appropriation.

Budget Authority - Authority provided by law to enter into obligations that will result in immediate or future outlays. It may be classified by the period of availability, by the timing of congressional action, or by the manner of determining the amount available.

Budget Estimate - Cost estimate prepared for inclusion in the DoD budget to support an acquisition program.

Budget Estimate Submission (BES) - The annual Services budget submission to OSD showing budget requirements for inclusion in the DoD budget.

Budgeting - The process of translating approved resource requirements into a funding profile.

Broad Agency Announcement (BAA) - Used by agencies to fulfill their requirements for scientific study and experimentation directed toward advancing the state-of-the-art or increasing knowledge or understanding rather than focusing on a specific system or hardware solution.

Chairman's Program Assessment - Provides an assessment of the balance, adequacy, capabilities, and risks of the Service Program Objective Memorandum (POM), and recommends actions to improve overall defense capability within OSD fiscal guidance.

Chairman's Guidance (CG) Document - Final product of the Joint Strategy Review (JSR), which provides top-down guidance to the Joint Staff and information to OSD, CINCs and other members of the JCS regarding the framework for building the National Military Strategy Document (NMSD).

Commerce Business Daily (CBD) - Publication of Department of Commerce in which government publicizes potential acquisitions (a "synopsis") to notify interested vendors.

Commercial Off-The-Shelf (COTS) - A commercial product (hardware or software) developed and produced for the general public having U. S. Government applicability and use without major modification or change.

Component Cost Analysis (CCA) - Documents the Air Force independent life-cycle cost estimate.

Component Program - A major defense acquisition program delegated to the Service Secretary for management.

Comptroller - The chief financial manager for the activity to which assigned. At OSD level, the DoD comptroller is responsible for the Planning, Programming, Budgeting, System (PPBS) and all budgetary matters.

Computer Resources - The totality of computer hardware, firmware, software, personnel, documentation, supplies, services, and support services applied to a given effort.

Computer Resource Life Cycle Management Plan (CRLCMP) - The primary program management document that describes the development, acquisition, test, and support plans for computer resources integral to, or used in, direct support of systems.

Concept Action Group (CAG) - A group established and led by the Operating Command during Phase 0 activities (Concept Exploration and Definition) to manage concept studies and Cost and Operational Effectiveness Analysis (COEA) preparation. The major command determines the composition of the CAG.

Concept Alternatives Review (CAR) - A comprehensive integrated activity that is conducted to examine the systems analysis products for each concept alternative under consideration.

Concept Exploration and Definition Phase - Beginning at Program Initiation, the initial phase of the system acquisition process. During this phase, the acquisition strategy is developed, system alternatives are proposed and examined, and the systems program requirement document is expanded to support subsequent phases.

Concept of Operations (CONOPS) - A verbal or graphic statement, in broad outline, of a commander's assumptions or intent in regard to an operation or series of operations. The concept of operations frequently is embodied in campaign plans and operation plans; in the latter case, particularly when the plans cover a series of connected operations to be carried out simultaneously or in succession. The concept is designed to give an overall picture of the operation. It is included primarily for additional clarity of purpose. Frequently it is referred to as the commander's concept (Joint Publication 1-02).

Congressional Budget - The budget as set forth by Congress in a concurrent resolution on the budget. These resolutions shall include: (a) the appropriate level of total budget outlays and total new budget authority; (b) an estimate of budget outlays and new budget authority for each major functional category, for contingencies, and for other categories; (c) the amount of the surplus or deficit in the budget (if any); (d) the recommended level of federal revenues; and (e) the appropriate level of the public debt.

Cooperative Opportunities Document (COD) - Summarizes the results of the cooperative opportunities analysis to allow decision makers to assess whether or not to structure a program as a cooperative development program. The cooperative development program considers buying allied systems or cooperating between our various allies on development, before initiation of a new acquisition program.

Communications Security (COMSEC) - The protection resulting from all measures designed to deny unauthorized persons information of value which might be derived from possession and study of telecommunications or to mislead unauthorized persons in their interpretation of results of such possession and study.

Constant Year Dollars - A method of relating dollars in several years by removing the effects of inflation and showing all dollars at the value they would have in a selected base year.

Cost Account - A management control point at which actual costs can be accumulated and compared to budgeted cost for work performed. A cost account is a natural control point for cost/schedule planning and control, since it represents the work assigned to one responsible organization element on the contract work breakdown structure element.

Cost Accounting - A system of accounting analysis and reporting on costs of production of goods or services, or of operation of programs, activities, functions or organizational units. The system may also embrace cost estimating, determination of cost standards based on engineering data, and comparison of actual and standard costs for the purpose of aiding cost control.

Cost Analysis - A process employed to develop or assess the reasonableness and validity of resource requirement estimates for military systems and programs. This process includes a statement or report of the assessment together with related conclusions.

Cost Analysis Improvement Group (CAIG) - An OSD advisory body established to advise the Defense Systems Acquisition Review Council (DSARC) on all matters concerning the estimation, review and presentation of cost analysis of future weapon systems. The CAIG also develops common cost estimating procedures for DoD. The CAIG serves as the Air Force group tasked to review the Cost and Operational Effectiveness Analysis (COEA), the Program Office Estimate (POE), and the Component Cost Analysis (CCA) which formerly was known as the Independent Cost Estimate (ICE), and the Independent Cost Analysis (ICA). In addition, the CAIG develops the Air Force service cost position, an additional estimate which reflects the position of Secretary of the Air Force.

Cost Analysis Requirements Description (CARD) - The CARD (as a part of the requirement for a program office estimate (POE) and a Component cost analysis (CCA)) is established as a basis for the cost-estimating of an acquisition program. It contains a description of the salient features of the program and of the system being acquired.

Cost and Operational Effectiveness Analysis (COEA) - The quantitative documentation of an examination of alternative prospective systems for the purpose of identifying the preferred system for eliminating a mission deficiency and its associated equipment and organizations. The examination aims at finding more precise answers to a question and not at justifying a conclusion. The analytical process includes tradeoffs among alternatives, the measurement of the effectiveness, and the cost of the alternatives.

Cost Effectiveness - (1) A comparative evaluation derived from analysis of alternatives (actions, methods, approaches, equipment, combinations, etc.) in terms of the interrelated influences of cost and effectiveness in accomplishing a specific mission. (2) A cost-effective balance must be achieved among acquisition costs, ownership costs of major systems, and system effectiveness in terms of the mission to be performed.

Cost Estimate - A result or product of an estimating procedure which specifies the expected dollar cost required to perform a stipulated task or to acquire an item. A cost estimate may constitute a single value or a range of values.

Contract Data Requirements List (CDRL) - A list of data requirements that are authorized for a specific acquisition and made a part of the contract.

Contract Work Breakdown Structure - The complete Work Breakdown Structure (WBS) for a contract, developed and used by a contractor within the guidelines of MIL-STD-881A, and in accordance with the contract statement of work.

Critical Intelligence Parameters (CIPs) - A threat capability or threshold established by the program, changes to which could critically impact the effectiveness and survivability of the proposed system.

Defense Acquisition Board (DAB) - The senior DoD acquisition review board chaired by the Under Secretary of Defense for Acquisition. The Vice Chairman of the Joint Chiefs of Staff is the Vice-Chair. Other members of the Board are the Deputy Under Secretary of Defense for Acquisition , Service Acquisition Executives of the Army, Navy, and Air Force; the Director of Defense Research and Engineering; the Assistant Secretary of Defense for Program Analysis and Evaluation; the Comptroller of the Department of Defense; the Director of Operational Test and Evaluation, the appropriate Defense Acquisition Board Committee Chair, and the Defense Acquisition Board Executive Secretary. Other persons may attend at the invitation of the Chair.

Defense Acquisition Board (DAB) Committee -Advisory review groups subordinate to the DAB. The number of Committees is determined by the Under Secretary of Defense for Acquisition. The purpose of the Committee is to review DoD Component programs prior to a DAB review in order to make an independent assessment and recommendation to the Board regarding the program.

Defense Acquisition Executive (DAE) - The principal advisor to the the Secretary of Defense (SECDEF) on all matters pertaining to the DoD acquisition system and programs. The Under Secretary of Defense for Acquisition (USD(A)) is the DAE.

Defense Acquisition Commander (DAC) - The individual who functions as the program executive officer (PEO) on programs that are not assigned to a PEO. The commanders of product divisions and air logistics centers act in this capacity. DACs, like PEOs, are accountable to the Air Force Acquisition Executive (AFAE).

Defense Guidance - Document issued annually (January) by the Secretary of Defense (SECDEF) to DoD components providing strategic framework for the Program Objective Memorandum (POM).

Defense Planning and Resource Board (DPRB) -Serves as the corporate review body for the Secretary of Defense (SECDEF) .

Defense Intelligence Agency (DIA) Intelligence Report - Validates the basis for the threat in the Mission Need Statement (MNS) and the System Threat Assessment Report (STAR).

Defense Planning Guidance (DPG) - Outlines OSD's strategic plan for the development and employment of future forces and is issued in late fall of odd-numbered years.

Defense Systems Acquisition Review Council (DSARC) - A high level advisory group established by and functioning for the Secretary of Defense to appraise the Secretary of Defense of the program status and readiness of each major defense system to proceed to the next phase in the acquisition process.

Deficiency - Operational need minus existing and planned capability. The degree of inability to successfully accomplish one or more mission tasks or functions required to achieve mission or mission area objectives. Deficiencies might arise from changing mission objectives, opposing threat systems, changes in the environment, obsolescence, or depreciation in current military assets.

Deficiency Analysis - Evaluation of the Air Force's ability to accomplish identified tasks and missions using current and programmed future forces.

Demonstration and Validation Phase - Known as Phase I in the acquisition process, following Milestone I. Consists of steps necessary to resolve or minimize logistics problems identified during concept exploration, verify preliminary design and engineering, accomplish necessary planning, fully analyze trade off proposals, and prepare contracts. The objective is to validate the choice of alternatives and to provide the basis for determining whether or not to proceed into Engineering and Manufacturing Development (EMD).

Development Test and Evaluation (DT&E) - That test and evaluation conducted to measure progress, and to assist the engineering design and development process and verify attainment of technical performance specifications and objectives.

DoD Components - The Office of the Secretary of Defense; the Military Departments; the Chairman, Joint Chiefs of Staff and Joint Staff; the Unified and Specified Commands; the Defense Agencies; and DoD Field Activities.

DoD Component Acquisition Executive - A single official within a DoD Component who is responsible for all acquisition functions within that Component. This includes Service Acquisition Executives for the Military Departments and Acquisition Executives in other DoD Components who have acquisition management responsibility.

Draft Request for Proposal (DRFP) - A tool used in competitive acquisitions to obtain industry feedback on the planned acquisition. The DRFP helps to produce a more effective Request for Proposal (RFP) and a better contract by allowing industry time to comment on the RFP before it is finalized.

Electronic Bulletin Board - A data base that can be accessed by industry utilizing standard modems over common carrier telephone lines. It can be used to index library information, upload essential documents or provide information in an expeditious manner.

Engineering and Manufacturing Development (EMD) Phase - Known as Phase II in the acquisition process, following a Milestone II decision. The objectives of the EMD phase are to translate the most promising design approach developed in Phase I, Demonstration and Validation, into a stable,

producible and cost effective system design, validate the manufacturing or production process, and demonstrate through testing that the system capabilities meet contract specification requirements, and satisfy the mission need and meet minimum acceptable operational performance requirements.

Environment - Used as a general reference, environment includes the generic natural environment; e.g., weather, climate, ocean conditions, terrain, vegetation, etc. Modified environment can refer to specific induced environments; e.g., "dirty" battlefield environment, nuclear-chemical-biological environment, etc. Environment includes those conditions observed by the system during operational use, stand-by, maintenance, transportation, and storage.

Exit Criteria - Program specific accomplishments that must be satisfactorily demonstrated before an effort or program can progress further in the current acquisition phase or transition to the next acquisition phase. Exit criteria may include such factors as critical test issues, the attainment of projected growth curves and baseline parameters, and the results of risk reduction efforts deemed critical to the decision to proceed further. Exit criteria supplement minimum required accomplishments and are specific to each acquisition phase.

Flow Chart - A graphical explanation of a particular process.

Grassroots Working Group - An aggregation of working level personnel brought together to accomplish an assigned task.

Guidance Update Memorandum (GUM) - Addresses any major questions left unanswered from the Defense Acquisition Board required documentation review. It identifies major deficiencies and issues regarding the documentation. The information is used by the project director to update the documents.

Human Systems Integration (HSI) - The Air Force implements HSI through the Integrated Manpower, Personnel, and Comprehensive Training and Safety (IMPACTS) Program Plan (IPP) and the Preliminary IMPACTS Program Plan. The IPP is the implementation of DoD Instruction 5000.2, Part 7, Section B, requirement for every defense acquisition program to develop an HSI Plan. It is also the background analysis and justification for the manpower Estimate Report (MER).

IMPACTS - DoDI 5000.2, Part 7, Section B, requires that human considerations be integrated into the design of defense systems in order to focus on the capabilities and limitations of the airman in order to improve total system performance and reduce costs of ownership. The Air Force initiative to incorporate Human Systems Integration (HSI) into Air Force weapon system programs is called IMPACTS. The IMPACTS program is a comprehensive management and technical approach for addressing the human centered elements of manpower, personnel, training, safety, health hazards, and human factors engineering in the acquisition of new or improved systems.

IMPACTS Planning Team - The Integrated Manpower, Personnel and Comprehensive Training and Safety (IMPACTS) Planning team brings together the necessary expertise required to assess and address issues within individual IMPACTS elements, such as manpower, personnel, training, and safety constraints, and to provide a forum for assessing trade-offs. Up to Milestone 0, this process is meant to be very approximate and non time-consuming because of the lack of specificity associated with the Mission Need Statement process. After Milestone 0, a more in-depth analysis will be required.

Implementation - The publication of directives, instructions, regulations, and related documents that define responsibilities and authorities and establish the internal management processes necessary to implement the policies or procedures of a higher authority.

Implementing Command - The command or agency designated by the Air Force Acquisition Executive to manage an acquisition program.

Independent Cost Analysis - An analysis of program cost estimates conducted by an impartial body disassociated from the management of the program (See Title 10, United States Code, Section 2434, "Independent cost estimates; operational manpower requirements").

Independent Cost Estimate - A cost estimate prepared by an impartial body outside the chain of authority responsible for acquiring or using goods or services.

Industry Link - The government establishes a link with industry to obtain the latest technological information in support of Air Force deficiencies. Participation in early study or mission needs allows industry visibility into potential requests for acquisition support.

Industry Presolicitation Conference - A method of conveying information, enhancing understanding of requirements, reducing adversarial relationships and building a sense of ownership in the program from both the government and industry standpoint. Industry conferences must be published in the Commerce Business Daily (CBD) to facilitate industry wide participation.

Integrated Acquisition Strategy Process (IASP) -The IASP is a program management oriented, "top-down" process which incorporates the input of senior experienced advisors early in the formulation of the acquisition strategy. To accomplish this, senior leaders and functional experts meet in a series of "Roundtable" discussions with the System Program Director/Laboratory Program Manager/Initial Program Office Cadre (referred to in the process guide as project manager/project team) to provide timely advice on acquisition strategies to achieve program goals. The full IASP includes: (1) Strategic Roundtable, (2) Tactical Roundtable, (3) Acquisition Strategy Panel, and (4) Operational Roundtable.

Integrated Logistics Support (ILS) - A disciplined, unified, and iterative approach to the management and technical activities necessary to integrate support considerations into system and equipment design; develop support requirements that are related consistently to readiness and provide the required support during the operational phase at minimum cost.

Integrated Logistics Support Plan (ILSP) - Describes the concepts, resource requirements, tasks, schedules, and subordinate plans associated with each ILS element. The ILS elements encompass: maintenance planning, manpower and personnel, supply support, facilities, packaging, handling, storage, and transportation, and design interface.

Integrated Product Development (IPD) - A philosophy that systematically employs a teaming of functional disciplines to integrate and concurrently apply all necessary processes to produce an effective and efficient product that satisfies customer needs.

Integrated Program Assessment (IPA) - A document prepared by the supporting staff or review forum of the milestone decision authority to support Milestone I, II, III, and IV reviews. It provides an independent assessment of program status and readiness to proceed into the next phase of the acquisition cycle.

Integrated Program Summary (IPS) - A DoD Component document prepared and submitted to the milestone decision authority in support of Milestone I, II, III, and IV reviews. It succinctly highlights the status of a program and its readiness to proceed into the next phase of the acquisition cycle.

Integrated Weapons System Management (IWSM) - The AFMC management philosophy for acquiring, evolving, and sustaining our products. It empowers a single manager with authority over the widest range of decisions and resources to satisfy customer requirements throughout the life cycle of the product.

Integrated Weapon System Management Plan (IWSMP) - This plan addresses both the acquisition phase and the evolution and sustainment phase of a weapon system. The IWSMP will define the weapon system evolution throughout the system life cycle. It will be agreed to by the developer/supporter and the customer and will allow coordinated budgeting and tradeoffs to be made with full knowledge of what is forecasted for the future.

Issue a Letter - Letters are issued to individual prospective offerors containing identical information to ensure that no firm is given an unfair advantage as a result of government actions.

Intelligence Community - Defense Intelligence Agency (DIA), National Security Agency (NSA), Central Intelligence Agency (CIA) responsible for producing a wide variety of documents

addressing threat information to determine if current military capabilities are sufficient to meet envisioned threat scenarios.

Intelligence Report - A report provided by the appropriate intelligence agency/command to the milestone decision authority prior to each milestone review. For Milestone 0, the report will confirm the validity of the threat contained in the Mission Need Statement (MNS). For Milestone I, the report will confirm the validity of the system threat assessment (STA) used in support of the program and will address any threat issues or unresolved threat concerns affecting the program.

Invitation for Bid - A solicitation document used in sealed bidding acquisitions.

Issue Papers - OSD documents that define issues raised as a result of the analysis of the annual Program Objective Memorandum (POM) submittal prepared to assist the Secretary of Defense in making his decision.

Joint Program - Any Defense acquisition system, subsystem, component, or technology program that involves formal management or funding by more than one DoD Component during any phase of a systems life-cycle.

Joint Requirements Oversight Council (JROC) - A Council, chaired by the Vice Chairman, Joint Chiefs of Staff, that conducts requirements analyses, determines the validity of mission needs and develops recommended joint priorities for those needs it approves, and validates performance objectives and thresholds in support of the Defense Acquisition Board. Council members include the Vice Chiefs of the Army, Navy, and Air Force, and the Assistant Commandant of the Marine Corps (See MCM-178-90, "Charter of the Joint Requirements Oversight Council").

Joint Requirements Oversight Council (JROC) Assessment - Verifies the need and confirms that the proposed performance objectives and thresholds to be contained in the program baseline satisfy the operational need.

Joint Strategic Capabilities Plan (JSCP) - Contains guidance to the Commanders in Chief and Service Chiefs for the accomplishment of military tasks in the near term (2 years), given their Service capabilities and attributes.

Joint Strategy Review (JSR) - A process for gathering information, raising issues, and integrating strategy and operational planning with program assessment.

Joint Working Group (JWG) - Composed of representatives for the combat and materiel developers and appropriate subject matter experts. The primary purpose is to provide a forum for direct communication facilitating the coordination of requirements documents.

Lessons Learned Database - Air Force acquisition personnel may gain access to a large database of acquisition lessons learned through the PC-based "Automated Lessons Learned Capture and Retrieval System (ALLCARS)" software. The database this software draws from is supported by the Air Force, the Army, the Navy, and the Marine Corps. POC is ASC/CYML, DSN 785-3454.

Life Cycle Cost (LCC) - The total cost to the government of acquisition and ownership of a system over its useful life. It includes the cost of development, acquisition, support and, where applicable, disposal.

Logistics Supportability - The degree to which planned logistics support (including test, measurement, and diagnostic equipment; spares and repair parts; technical data; support facilities; transportation requirements; training; manpower; and software support) allow meeting system availability and wartime usage requirements.

Logistic Support Analysis (LSA) - The selective application of scientific and engineering efforts undertaken during the acquisition process, as part of the systems engineering process, to assist in: causing support considerations to influence design; defining support requirements that are related optimally to design and to each other; acquiring the required support; and providing the required support during the operational phase at minimum cost.

Logistics Support Analysis Record (LSAR) - A formal tool under MIL-STD 1388-2A that uses records/forms to document operations and

maintenance requirements, R&M, task analyses, technical data, support/test equipment, facilities, skill evaluation, supply support, ATE and TPS, and transportability. LSAR is the basis for training, personnel, supply provisioning and allowances construction, support equipment acquisition, facilities construction and preparation, and for maintenenace--preventive and corrective.

Major Defense Acquisition Program - A DoD acquisition program that is not a highly sensitive classified program (as determined by the SECDEF and : (a) That is designated by the SECDEF as a major defense acquisition program because of urgency of need, development risk, joint funding, significant Congressional interest, or other considerations, or: (b) That is estimated by the SECDEF to require an eventual total expenditure for research, development, test, and evaluation of more than $200 million (based on FY 1980 constant dollars) or an eventual total expenditure for procurement of more than $1 billion (based on FY 1980 constant dollars). This definition is based on the criteria established in Title 10, United States Code, Section 2430 "Major Defense Acquisition Programs Defined."

Major Program - A term synonymous with "major defense acquisition program."

Major System (Congressional and Federal Acquisition Regulation definition) - Redefined by the DoD Authorization Act, FY 85 (10 U.S.C. 2302); dollar thresholds RDT&E - $75M plus (in FY 80 constant $1), Procurement - $300M plus (in FY 80 constant $1).

Major System (OMB Circular A-109 Definition) - That combination of elements that will function together to produce the capabilities required to fulfill a mission need. The elements may include, for example, hardware, equipment, software, construction, or other programs that (1) are directed at and critical to fulfilling an agency mission, (2) entail the allocation of relatively large resources, and (3) warrant special management attention. Additional criteria and relative dollar thresholds for the determination of agency programs to be considered major systems under the purview of this Circular, may be established at the discretion of the agency head.

Material - (1) Property which may be incorporated into or attached to an end item to be delivered under a contract or which may be consumed or expended in the performance of a contract. It includes, but is not limited to, raw and processed material, parts, components, assemblies, fuels and lubricants and small tools and supplies which may be consumed in normal use in the performance of a contract. (2) The substance or substances of which a thing is made or composed.

Materiel - (1) Military arms, ammunition, and equipment in general. (2) The aggregate of things used or needed in any business, undertaking, or operation (distinguished from personnel).

Materiel Group - A grouping consisting of several like products that normally receive consolidated management for sustainment largely for reasons of economy of scale and specialization of technical/engineering expertise, e.g., landing gear. Normally does not have any ongoing developmental efforts.

Materiel Group Manager (MGM) - The individual managing an AFMC Materiel Group who is ultimately responsible and accountable for decisions and resources in overall materiel group management. The MGM is the single person who is charged with all cost, schedule, and performance aspects of a materiel group. The MGM's primary customers for the daily sustainment products and services and new equipment are the using MAJCOMs. However, the MGM's customers for integration of new development and technology transition are the respective project managers and system program directors.

Memorandum of Agreement - (1) In contract administration, an agreement between a program manager and a Contract Administration Office (CAO), establishing the scope of responsibility of the CAO with respect to the Cost/Schedule Control Systems Criteria (C/SCSC) surveillance functions and objectives, and/or other contract administration functions on a specific contract or program. (2) Any written agreement in principle as to how a program will be administered.

Milestone - The point when a recommendation is made and approval sought regarding starting or continuing (proceeding to next phase) an

acquisition program. Milestones are: 0 (Concept Direction), I (Concept Approval), II (Engineering and Manufacturing Development), III (Production Approval), and IV (Major Upgrade Decision).

Milestone Decision Authority (MDA) - The individual designated in accordance with criteria established by the Under Secretary of Defense for Acquisition (USD(A)) to approve entry of an acquisition program into the next phase.

Milestone I Program Cost Estimate - This will be the formal Life Cycle Cost (LCC) estimate for the program alternative that will be recommended for approval at the Milestone I Decision Review. The estimate should include all program life cycle costs: development, production, operating and support, and disposal.

Military Capability - A measure of military systems ability to achieve the mission objectives, given the system condition during the mission.

Military System - A discrete, stand-alone system or collection of systems and related resources which, in conjunction with user support and operation, provide a capability to accomplish a specific military mission, e.g., F-22 or Global Positioning Systems (GPS).

Minimum Required Accomplishments - Necessary tasks that must be completed during an acquisition phase prior to the next milestone decision review. Applies to all acquisition categories and highly sensitive classified programs.

Mission - The objective or task, together with the purpose, which clearly indicates the action to be taken.

Mission Area - A segment of the defense mission as established by the Secretary of Defense. Each DoD component has mission areas (i.e., Navy - sea control) for which it must equip its forces for potential hesitates.

Mission Area Assessment (MAA) - Continuous analysis of assigned mission responsibilities in the several mission areas to identify functions or tasks that will satisfy mission needs

Mission Area Plans - Ensures that adequate resources (people and money) are available to support the mission area planning process. During this activity, the MAJCOM determines what mission area planning will be required, which agencies/organizations need to be involved in the process and what funding is needed to support any study and analyses effort.

Mission Deficiencies - Operational need minus existing and planned capability. The degree of inability to successfully accomplish one or more mission tasks or functions required to achieve mission or mission area objectives. Deficiencies might arise from changing mission objectives, opposing threat systems, changes in the environment, obsolescence, or depreciation in current military assets.

Mission Need - A statement of operational capability required to perform mission operations.

Mission Need Analysis (MNA) - A process designed to assess the Air Force ability to accomplish the tasks identified during Mission Area Assessment (MAA). MNA uses a task-to-need methodology to identify mission needs. MNA can also highlight technological opportunities and identify reliability and maintainability improvements which can also enhance warfighting capabilities.

Mission Need Statement (MNS) - A document prepared to identify a requirement for a materiel solution to satisfy a mission deficiency.

Modification - A configuration change to a delivered configuration item.

National Military Strategy Document (NMSD) - Joint Chiefs of Staff (JCS) document that recommends military strategy and fiscally-constrained force structure to the President, National Security Council, and Office of the Secretary of Defense (OSD). The NMSD is issued in the summer of odd-numbered years and is a major input to the formulation of the OSD's Defense Planning Guidance (DPG).

New Start - A major defense acquisition program approved at milestone 0 by a USD(A) Acquisition Decision Memorandum (ADM).

New Work - A corporate review process for both accepting and allocating new work for ASC Acquisition Organizations. The process is designed to match new work requirements with available resources.

Non-Developmental Item (NDI) - (1) Any item of supply that is available in the commercial marketplace; (2) Any previously developed item of supply that is in use by a department or agency of the U. S., a State or local government, or a foreign government with which the U. S. has a mutual defense cooperation agreement; (3) any item of supply described in (1) or (2), that requires only minor modification in order to meet the requirements of the procuring agency; or (4) any item of supply that is currently being produced that does not meet the requirements of definition (1) (2) or (3) above, solely because the item is not yet in use or is not yet available in the commercial marketplace.

Nonmajor Defense Acquisition Program - A program other than a major defense acquisition program or a highly sensitive classified program.

Nonmajor System - A full system that does not qualify as a major system or performs a major function of a complete system that is either within a major or another nonmajor system.

Nuclear Certification Plan - This plan provides overall guidance and policy concerning the nuclear certification aspects of the project (if applicable). It identifies nuclear certification and safety activities that must be accomplished, and identifies major contributors and/or responsibilites of the participants in the nuclear certification and safety projects. It serves as an integrated, cohesive plan to accomplish the required nuclear certification tasks. For plan procedures see AFR 122-1, The Air Force Nuclear Weapon Surety Program and ASC/ENS Nuclear Certification Handbook, Feb 87.

Objective - The target of an organization or system. In military organizations this is usually synonymous with the mission. A detailed analysis would indicate that (1) at times it is difficult to obtain an explicit statement of an organization's objectives, (2) objectives will vary at different levels within an organization, (3) several objectives will exist at one level, some of which may conflict, and (4) objectives are dynamic and change with time.

Offer - A response to a solicitation that, if accepted, would bind the offerer to perform the resultant contract.

Office of the Under Secretary of Defense (Acquisition) - The Office of the USD(A), OUSD(A), is organized around functional areas of services, R&D, and material acquisition. Seven OSD organizational elements report to the USD(A): -Director, Defense Research and Engineering (DDR&E) -Assistant Secretary of Defense (Command Control, Communications and Intelligence) (C31), for acquisition matters - Assistant Secretary of Defense (Production and Logistics) (ASD(P&L) -Assistant Secretary of Defense (Atomic Energy) -Director, Program Integration (PI) -Director, Small and Disadvantaged Business Utilization (SADBU) - Executive Director, Defense Science Board (DSB). Additionally, the Commandant of the Defense Systems Acquisition report to the USD(A) -Defense Communications Agency (DCA) -Defense Logistics Agency (DLA) - Defense Mapping Agency (DMA) -Defense Nuclear Agency (DNA) - On Site Inspection Agency (OSIA).

OMB Circular A-109 - As the President's chief administrative manager for the Federal Government, OMB issued this directive in 1976. It defines the system acquisition process as "a sequence of acquisition activities starting from the agency's mission needs, with its capabilities, priorities and resources (dollars), extending through introduction into use or successful achievement of program objectives."

Ombudsman Program - Each product division establishes an ombudsman to serve as a channel for industry comments on a nonattribution basis. The ombudsman is appointed to hear and investigate complaints against the government.

Operating Command - The command primarily operating a system, subsystem, or item of equipment. Generally applies to those operational commands designated by Headquarters, US Air Force to conduct or participate in operations or operational testing.

Operational Assessment - An evaluation of operational effectiveness and operational suitability made by an independent operational test activity, with user support as required, on other than production systems. The focus of an operational assessment is on significant trends noted in development efforts, programmatic voids, areas of risk, adequacy of requirements, and the ability of the program to support adequate operational testing. Operational assessments may be made at any time using technology demonstrators, prototypes, mockups, engineering development models, or simulations but will not substitute for the independent operational test and evaluation necessary to support full production decisions.

Operational Effectiveness - The overall degree of mission accomplishment of a system used by representative troops in the context of the organization, doctrine, tactics, threat, and environment in the planned operational employment of the system.

Operational Reliability and Maintainability Value - Any measure of reliability or maintainability that includes the combined effects of item design, quality, installation, environment, operation, maintenance, and repair.

Operational Requirements Document (ORD) - Identifies minimum acceptable performance requirements to satisfy the operational need; also includes performance objectives that would provide operationally meaningful increases in capability. Prepared by user or user's representative. DoD 5000.2M, Part 3 contains preparation procedures and format.

Operational Roundtable III (See IASP) - Develops and harmonizes the detailed functional plans and milestone directed documentation.

Operational Suitability - The degree to which a system can be placed satisfactorily in field use with consideration given to availability, compatibility, transportability, interoperability, reliability, wartime usage rates, maintainability, safety, human factors, manpower supportability, logistics supportability, natural environmental effects and impacts, documentation, and training requirements.

Operations Security (OPSEC) - A process of analyzing friendly actions attendant to military operations and other activities to:

a. Identify those actions that can be observed by adversary intelligence systems.

b. Determine indicators hostile intelligence systems might obtain that could be interpreted or pieced together to derive critical information in time to be useful to adversaries.

c. Select and execute measures that eliminate or reduce to an acceptable level the vulnerabilities of friendly actions to adversary exploitation. Protection of military operations and activities resulting from identification and subsequent elimination or control of indicators susceptible to hostile operations.

Oversight - Review activity by congressional committees of DoD programs to determine (1) status, (2) if the law is being followed or (3) basis for possible future legislation.

Parameter - A determining factor or characteristic. Usually related to performance in developing a system.

Participating Service - An organization that supports the lead service in the development of a program by its contribution of personnel and/or funds for the successful completion of the program.

Participants in Defense Acquisition - The three participants (players) in defense acquisition are the Executive Branch of the Federal Government, the Legislative Branch and Industry (defense contractors). Each has a significant role and perspective.

Performance - Those operational and support characteristics of the system that allow it to effectively and efficiently perform its assigned mission over time. The support characteristics of the system include both supportability aspects of the design and the support elements necessary for system operation.

Personnel - A body of persons usually employed in an organizations. "Faces." Individuals, by grade, experience, skill levels, etc.

Phases (0 through IV) - The acquisition phases provide a logical means of progressively

translating broadly stated mission needs into well defined system-specific requirements:

0 Concept Exploration and Definition
I Demonstration and Validation
II Engineering and Manufacturing Development
III Production and Deployment
IV Operations and Support

(DoD Directive 5000.1)

Planning for Defense Acquisition - The process through which the national security threat is evaluated, mission needs defined, systems requirements established, resources (money, manpower and material) programmed and the resultant system acquisition program authorized and begun. Planning for acquisition, a recurring process which generates a system need, precedes acquisition planning for a specific program.

Planning, Programming, Budgeting System (PPBS) - An integrated DoD system for the establishment, maintenance, and revision of the Five Year Defense Program (FYDP) and the DoD budget. Focal point is ASC (Comptroller). First of four phases of the Resource Allocation Process. The purpose of the PPBS is to: (1) complete the defense planning phase, which in many cases began years before, (2) initiate and complete the programming phase, where plans are prioritized and matched with expected funds, and (3) result in a DoD budget for presentation to the Congress as part of the President's budget. Until 1987, the PPBS was an annual process through which DoD prepared its annual budget. Beginning in 1986 with submission of the the first 2-year defense budget, for fiscal years 1988-89, the PPBS became a biennial procedure. In common usage, the term PPBS generally implies the resource allocation process.

Player - A Participant.

Point of Contact - Person serving as coordinator, action officer or focal point for an activity.

Pollution Prevention Action Plan (PPAP) - A plan to prevent the release of pollutants into the environment and reduce the use of hazardous materials. The major plan objectives are: reduce the use of hazardous materials in new and existing weapon systems; reduce the use of hazardous materials and waste generation at installations and Government Owned Contractor Operated (GOCO) facilities; acquire state of the art pollution prevention technologies; apply new technology to pollution prevention, from outside Air Force research; establish investment strategy to fund pollution prevention program.

Preferred Alternatives Review (PAR) - A comprehensive quality review that assesses the technical adequacy and scope of the alternative(s) including the interface and operability issues. It determines whether each of the primary system functions have been adequately addressed to surface any subsystem issues and to support system planning.

Preliminary IMPACTS Program Plan (P-IPP) - IMPACTS tasking begins with Pre-Milestone 0 development and documentation of system IMPACTS goals, constraints, and objectives. These are developed through a thorough analysis of the predecessor system or new system concept designs. These goals, constraints, and objectives, along with a strategy for meeting them, are documented in the Preliminary IMPACTS Program Plan (P-IPP).

Process - (1) The combination of people, equipment, materials, methods, and environment that produce output--a given product or service. A process can involve any aspect of a business. A key tool for managing processes is statistical process control, (2) a planned series of actions or operations which advances a material or procedure from one stage of completion to another, and (3) a planned and controlled treatment that subjects materials to the influence of one or more types of energy for the time required to bring about the desired reactions or results.

Procuring Contracting Officer (PCO) - The individual authorized to enter into contracts for supplies and services on behalf of the government by sealed bids or negotiations who is responsible for overall procurement of the contract.

Product - Product, as referred to in the IPD Definition, is not only what is delivered to your customer (e.g., design, manufacturing, test, logistics, acquisition security...) which make the product possible. Products range from

complete weapon systems to individual end items, from request for proposals to briefings, as well as policies and processes.

Product Group - A grouping consisting of several like products in all life cycle phases that are characterized by an ongoing development requirement as well as a much larger cumulative sustainment effort, e.g., propulsion.

Product Group Manager (PGM) - The individual managing an AFMC Product Group who is ultimately responsible and accountable for decisions and resources in overall product group management. The PGM is the single person who is charged with all cost, schedule and performance aspects of a product group and related sustainment activities. Typically, the PGM's product is in direct support of one or more military systems.

Production and Deployment Phase - Known as Phase III in the acquisition process, following a Milestone III decision. The objectives of this phase are to establish a stable, efficient production and support base, achieve an operational capability that satisfies the mission need, and conduct follow-on operational and production verification testing to confirm and monitor performance and quality and verify the correction of deficiencies.

Program (Acquisition) - A defined effort funded by Research Development Test & Evaluation (RDT&E) and/or procurement appropriations with the express objective of providing a new or improved capability in response to a stated mission need or deficiency.

Program Alternatives Assessment (PAA) - Ensures that the business, financial, and political risks are examined for each concept being considered during Concept Exploration.

Program Baseline - A formal agreement between the Defense Acquisition Executive (DAE), Service Acquisition Executive (SAE), Program Executive Officer (PEO) and the Program Manager (PM) that briefly summarizes the program functional specifications, cost, schedule and other factors critical to program success. The Program Baseline is integral to Milestones I, II and III approval and cannot be changed without DAE approval. Within the Program Baseline scope, the PM is given full authority to manage the program. Congress requires a development baseline (MS II) and production baseline (MS III) for all major defense acquisition programs. For Defense Enterprise Programs, a baseline is submitted to Congress.

Program Database - A central location for the collection and storage of information/data to support the project teams and subsequent System Program Office (SPO) in making decisions that respond to external and internal requirements (i. e., information needs of the Milestone Decision Authority (MDA)).

Program Decision Memorandum (PDM) - Any issues that are approved by the Secretary of Defense are recorded in the PDMs and the PDM is used to update the Service's databases and Program Objective Memorandum (POM) documentation.

Program Element Monitor (PEM) - Person with HQ USAF office of primary responsibility who is directly responsible for a given program and all documentation needed to harmonize the program in the budget.

Program Executive Officer (PEO) - A military or civilian official who has primary responsibility for directing several acquisition category I programs and for assigned acquisition categories II, III, and IV programs. A PEO has no other command or staff responsibilities within the Component, and only reports to and receives guidance and direction from the DoD Component Acquisition Executive (CAE).

Program Life Cycle Cost Estimate (PLCCE) - A military or civilian official who has primary responsibility for directing several acquisition categroy I programs and for assigned acquisition category II, III, and IV programs. A PEO has no other command or staff responsibilities within the Component, and only reports to and receives guidance and direction from the DoD Component Acquisition Executive (CAE).

Program Management - (1) The process whereby a single leader and team are responsible for planning, organizing, coordinating, directing and controlling the combined efforts of participating/assigned civilian and military personnel and organizations in accomplishement of program objectives. (2) The concept of program management is defined

as a special management approach used to provide centralized authority and responsibility (on a team or task force basis) for priority accomplishments of a specified project or task. The task critical to organization success involves the timely integration of divergent specialists and activities into coherent, coordinated management. (3) Program management provides a single point of contact as the major force for directing the system through evolution, development, production and deployment.

Program Management Directive (PMD) - Directs programmatic responsibilities to major command, field, and test organizations for systems development, modification, or acquisition in broad terms. It originates within the Headquarters (Secretariat and Air Staff) and is coordinated with all outside implementing, supporting, participating, operating, and test agencies. The intent of the PMD is to integrate all activities which affect the life cycle of a program. All Air Force programs are required to have a complete and current PMD.

Program Management Plan (PMP) - The document developed and issued by the program manager which shows the integrated time-phased actions and resources required to complete the task. Certain nonmajor programs may use a PMP to replace all the functional plans, but the PMP is generally not used on major programs.

Program/Project Manager (PM) - Official responsible for managing a specific acquisition program who reports to and receives direction from either a Program Executive Officer (PEO) or Service Acquisition Executive (SAE). The PM, while perhaps being unable to control the environment, nevertheless has management authority over business and technical aspects of a specifically defined program. The PM has only one responsibility and that is managing the program. Accountability is clearer, and results should be more easily quantifiable and measurable. The effective PM has the advantage of a large perspective of the program and the interrelationships among its elements. The PM is a leader and manager, not primarily a "doer;" understands the requirements, environment, organizations, activities, constraints, motivations impacting the program; knows and is capable of working within the established framework, managerial systems and processes that provide funding and other decisions for the program to proceed; comprehends and uses basic skills of management-planning, organizing, directing and controlling, so people and systems harmonize to produce the desired results; coordinates the work of defense industry contractors, consultants, in-house engineers and logisticians, contracting officers, and others, whether assigned directly to the program office or supporting it through a matrixed assignment format. Also called a Project Manager (PM), Program Director (PD), or System Program (SPM).

Programmatic - Pertains to the acquisition program itself (i. e., Procurement numbers, manpower, performance characteristics, mission, availability, etc.).

Program Objective Memorandum (POM) - A biennial memorandum submitted to the Secretary of Defense (SECDEF) from each Military Department and Defense agency. It proposes total program requirements for the next 6 years. It includes rationale for planned changes from the approved Future Years Defense Plan (FYDP) baseline within the fiscal guidance issued by the SECDEF.

Program Objective Memeorandum (POM) Wedge - Ensures that projected funding for a potential acquisition program over the next 8 years is planned into the Planning, Programming and Budgeting System (PPBS) as soon as possible.

Program Protection Plan (PPP) - The PPP is the overall operational security plan for the project/program. Some of the items to be considered in the PPP include: Essential Elements of Friendly Information (EEFI), security capabilities and procedures at all the facilities involved with the project/program, security classification guide, required security resources, etc.

Program Research and Development Announcements (PRDA) - A publication in the Commerce Business Daily (CBD) of a requiring activity's interest in new and creative research or development solutions to scientific or engineering problems, with the intent to solicit proposals. This announcement may be an appropriate contracting method for exploratory

research that has general application and is not system specific.

Program Technical Library - A central location where key releasable documents are made available for potential offerors review. The project manager authorizes use of a program technical library and determines which information and at what stage of development will be provided in the library. Once established, the location must be publicized in the Commerce Business Daily (CBD). Every effort should be made to ensure all potential offerors have equal and open access to library information.

Project - (1) Synonymous with program in general usage. (2) Specifically, a planned undertaking involving definition, development, production, and logistics support of a major weapon system or systems. A project may be the whole or part of a program.

Project Manager - The individual on whose shoulders rests the proper execution of the project plans. The project manager has to be very versatile and effective in handling all kinds of project situations, whether positive or negative. See Program Manager.

Project Summary Work Breakdown Structure (WBS) - A summary WBS tailored to a specific defense material item by selecting applicable elements from one or more summary WBS's or by adding equivalent elements unique to the project.

Project Team - An integrated core team of experienced acquisition experts responsible for initiating acquisition project activities, including preliminary Phase 0 planning, and for conducting initial conceptual studies.

Request For Information (RFI) - This announcement provides a broad statement of need, briefly describes the government's intentions regarding program/acquisition approach, and identifies key events. It also requests industry comments on how the government can satisfy its needs; alternative approaches; technology availability and risk; the identification of cost drivers; and suggestions on ways to enhance or sustain competition.

Request for Proposal (RFP) - A solicitation used in a negotiated acquisition to communicate government requirements to prospective contractors and to solicit proposals.

Requirement - (1) The need or demand for personnel, equipment, facilities, other resources, or services, by specified quantitatives for specific periods of time or at a specified time. (2) For use in budgeting, item requirements should be screened as to individual priority and approved in the light of total available budget resources.

Requirements Analysis - Serves as the principal link between the two operator lead activities (mission need statement preparation and operational requirements definition) and the developer's task of identifying viable conceptual design solutions and assessing their performance.

Requirements Correlation Matrix (RCM) - A three-part matrix spreadsheet used to provide a system audit trail of the capabilities and characteristics identified in the Operational Requirements Document (ORD). User system requirements are identified in terms of thresholds and objectives; and the user is also responsible for identifying the key parameters.

Resource - Any person, tool, equipment, or material used to complete an activity or task.

Resource Allocation Process - Includes the Planning Programming Budgeting System (PPBS), congressional budget enactment process apportionment of appropriated funds and budget execution.

Resource Allocation Team (RAT) - The RATs are the focal points for resource issues for the functional areas of Nuclear Deterrence, Power Projection, Global Mobility, Space and Command Control Communications, Materiel Support, Personnel Support, Classified Programs, and National Foreign Intelligence Programs.

Requirements Correlation Matrix - A three-part matrix spreadsheet used to provide a system audit trail of the capabilities and characteristics identified in the Operational Requirements Document (ORD).

Requirements Summit - See Summit.

Risk - A subjective assessment made regarding the likelihood or probability of not achieving a specific objective by the time established with the resources provided or requested. It also refers to overall program risk.

Risk Analysis - An examination of risk areas or events to determine options and the probable consequences for each event in the analysis.

Risk Assessment - The process of subjectively determining the probability that a specific interplay of performance, schedule, and cost as an objective, will or will not be attained along the planned course of action.

Risk Management - All actions taken to identify, assess, and eliminate or reduce risk to an acceptable level in selected areas (e.g., cost, schedule, technical, producibility, etc.); and the total program.

Risk Management Plan (RMP) - Defines how risk analysis will be performed. The purpose of the risk analysis is to anticipate the significant things that could go wrong, develop contingency plans in case they do go wrong, and estimate the cost and schedule impact for each area of risk.

Service Acquisition Executive (SAE) - Within each Military Department, designated by the Component Head, the SAE is responsible for administering acquisition programs in accordance with established DoD policies and guidelines. SAE also applies to the senior acquisition executive within any DoD Component having cognizance over an acquisition program. The SAE is also the senior procurement executive for each Military Department. In the Air Force, the Assistant Secretary for Acquisition, SAF/AQ, is also the Air Force SAE.

Solicitation - In contracting, the term means to go out to prospective bidders and request their response to a proposal.

Source Selection - The evaluation process where a team of acquisition professionals review the proposals submitted in response to Request for Proposals (RFPs). The strengths, weaknesses, and risks associated with each proposal are documented in Source Selection.

Source Selection Advisory Council (SSAC) - The chairperson of the SSAC is the individual responsible for the release of the notice on major acquisitions, and for less-than-major acquisitions, the contracting officer is responsible for ensuring the notice of the source selection action is accomplished. The notice identifies the system, subsystem, or project involved, the anticipated period of the source selection, and includes a statement stating that contacts by participating offerors are not allowed regarding the project.

Source Selection Authority (SSA) - The SSA determines which contractor is best qualified to fulfill the government's requirements at an affordable cost based upon the results of the Source Selection evaluation.

Source Selection Evaluation Board (SSEB) - A group of military and/or government civilian personnel, representing functional and technical disciplines. It is charged with evaluating proposals and developing summary facts and findings during source selection.

Source Selection Plan (SSP) - A key document that specifies how the source selection activities will be initiated and conducted. It serves as a guide for conducting the evaluation and analysis of proposals, and the selection of sources for the acquisition. It can best be described as the blueprint for conducting the source selection.

Specification - A document intended primarily for use in procurement, which clearly and accurately describes the essential technical requirements for items, materials or services including the procedures by which it will be determined that the requirements have been met. Specifications may be prepared to cover a group of products, services, or materials, or a single product, service or material, and are general or detail specifications.

SPO Cadre - Multi-discipline team formed after Milestone 0 approval (with the Project team as the core) to conduct the Concept Exploration and Program Definition phase. This group develops the initial plans and schedules to execute the future program.

Statement of Work (SOW) - That portion of a contract which establishes and defines all nonspecification requirements for contractors efforts either directly or with the use of specific cited documents.

Steering Group - A one-time, periodic, or on-going activity which pulls together appropriate management and/or technical expertise to direct, assist, guide, or execute an assigned task. Steering groups are typically formed to provide management oversight, guidance, advice, or approval authority for specified activities.

Strategy-To-Task Process (Analysis) - The "strategy-to-task" process links the need for certain military capabilities to the military strategy provided by the Chairman of the Joint Chiefs of Staff (CJCS).

Strategic Roundtable I (See IASP) - Ensures senior experienced management involvement early in formulating the initial project/program acquisition strategy. This roundtable helps the project manager formulate a sound, disciplined initial acquisition strategy by giving a project/program the benefit of the members' expert acquisition knowledge and advice.

Strawman - A working draft copy circulated for comments or suggested changes.

Study Advisory Group (SAG) - A senior advisory group comprised of experienced personnel from different commands to oversee the mission planning and requirements activities.

Summit (Requirements and Acquisition Program Review) - A senior level review, chaired by the Chief of Staff, U. S. Air Force, for all ongoing major defense acquisition programs. Summits will normally be convened between Milestone 0-I, Milestones I-II, and Milestones II-III to review and affirm user-stated needs and requirements and the adequacy of program development efforts to satisfy those needs in a timely, cost-effective manner.

Supporting Command - The command (Usually Air Force Materiel Command) responsible for providing logistics support for a system and assuming program management responsibility from the Implementing Command.

System - (1) The organization of hardware, software, material, facilities, personnel, data, and services needed to perform a designated function with specified results, such as the gathering of specified data, its processing, and delivery to users. (2) A combination of two or more interrelated equipment sets arranged in a functional package to perform an operational function or to satisfy a requirement.

System Analysis - A management planning technique which applies scientific planning methods of many disciplines to major problems or decisions. The list of disciplines includes, but is not limited to, traditional military planning, economics, political science and social sciences, applied mathematics, and the physical sciences.

System Program Director (SPD) - The individual directing an AFMC System Program Office (SPO) who is ultimately responsible and accountable for decisions and resources in overall program execution of a military system. The SPD is the single person, identified in a Program Management Directive (PMD), who is charged with all cost, schedule, performance, and sustainment aspects of a directed acquisition program. The SPD's primary customer is the using MAJCOM.

System Program Office (SPO) - The office of the program manager and the single point of contact with industry, government agencies and other activities participating in the system acquisition process.

System Threat Assessment (STA) - The basic authoritative threat assessment, tailored for and focused on, a particular acquisition category II through IV program. It describes the threat to be countered and the projected threat environment. The STA may be a stand-alone document or the threat assessment contained in the Operational Requirements Document (ORD). The threat information is based on Defense Intelligence Agency validated documents.

System Threat Assessment Report (STAR) - The basic authoritative threat assessment, tailored for and focused on, a particular major defense acquisition program. It describes the threat to be countered and the projected threat environment. The threat information is based

on Defense Intelligence Agency validated documents.

Systems Acquisition Process - The sequence of acquisition activities starting from the agency's reconciliation of its mission need, with its capabilities, priorities and resources, and extending through the introduction of a system into operational use of the otherwise successful achievement of program activities.

Systems Engineering - The application of scientific and engineering efforts to (1) transform an operational need into a description of system performance parameters and a system configuration through the use of an iterative process of definition, synthesis, analysis, design, test, and evaluation; (2) integrate related technical parameters and ensure compatibility of all physical, functional, and program interfaces in a manner that optimizes the total system definition and design; (3) integrate reliability, maintainability, safety, survivability, human, and other such factors into the total engineering effort to meet cost, schedule, and technical performance objectives.

System Maturity Matrix (SMM) - An acquisition management tool used for evaluating weapon system capability during the acquisition life cycle. The SMM includes significant parameters necessary to measure progress toward meeting the Operating Command requirements. The Implementing (lead) and Operating Commands develop and update the SMM and coordinate it with the Supporting Command, the operational test agency, and HQ USAF/XOR. It contains a time-phased comparison of the user's system requirements and contractual specifications which lead to maturity. It can be event driven.

Systems Engineering Management Plan (SEMP) - A concise top level technical management plan for the integration of all systems engineering activities. It includes plans for verification, risk alleviation, analyses and simulation of the system requirements.

Systems Engineering Master Schedule (SEMS) - The SEMS is a top-level tool used to measure progress toward completion of the systems engineering activities outlined in the systems engineering management plan (SEMP). The SEMS includes a set of exit criteria for each of the systems engineering tasks listed in the SEMP which must be successfully met prior to proceeding to the next task. It is not a time-line but an event-based flow of activities. Progress toward completion is based on a percentage of completed systems engineering tasks, not on where your project/program is based on the calendar.

Tactical Roundtable II (See IASP) - The tactical roundtable builds strategy alternatives with timing constraints and completes development of the Integrated Program Summaries (IPS)/Acquisition Strategy Report (ASR). This roundtable summarizes where the project is, versus where it should be, describes where the program is going, and how it will get there, and identifies project risk area and plans for managing risk. It provides the basis for establishing explicit project cost, schedule, and performance objectives. Roundtable II will give the project a systematic approach to completing a successful Acquisition Strategy Panel (ASP) with limited manpower of today's limited resource environment.

Tailoring - Usually referring to acquisition strategy (AS), tailoring allows the AS to be written to suit an individual program need. No strict format must be followed. Basics must be addressed, but the program manager has authority to design/plan for specific requirements to meet optional balance between need and cost.

Tailoring (Joint Program) - The process of evaluating potential requirements of the participating services to determine their pertinence and cost effectiveness for a specific system or equipment joint acquisition, and modifying these requirements to ensure that each contributes to an optimal balance between the needs of the participating Services and cost.

Task Order Contract - Laboratory and development planning support may be provided by use of contracts utilizing task ordering arrangements. Task ordering arrangements are appropriate for those instances in which a defined need exists for contractual support of the scientific and technical mission for which the precise nature, quantity or schedule of the requirement effort cannot be precisely determined in advance. It defines the description, specifications, and statement of work in general terms.

Task-To-Need Process - The evaluation of Air Force ability to accomplish identified tasks and missions using current and programmed forces.

Technical Data Package (TDP) - Those documents, drawings, reports, manuals, revisions, technical orders, or other submissions as set forth as a CDRL line item to be delivered as required by the contract. Also, TDP may be obtained by government to provide competition in production.

Technical Evaluation - The study, investigations or the Test & Evaluation (T&E) by a developing agency to determine the technical suitability of materiel, equipment, or a system, for use in the military services.

Technical Information - Information including scientific, which relates to research, development, engineering, test, evaluation, production, operation, use and maintenance of munitions and other military supplies and equipment.

Technical Performance Measurement (TPM) - Describes all the activities undertaken by the government program management office to obtain design status beyond that treating schedule and cost. TPM is defined as the product design assessment which estimates, through tests, the values of essential performance parameters of the current design of work breakdown structure product essentials. It forecasts the values to be achieved throughout the planned technical program effort, measures differences between achieved values and those allocated to the product element by the system engineering process, and determines the impact of these differences on system effectiveness.

Technical Planning Integrated Product Teams (TPIPTS) - TPIPTS are networks of experts from the acquisition and operational commands who plan and facilitate the transition of technical solutions to users' long term operational needs. They facilitate the initial planning and development leading to technically superior solutions to both the long and short term operational needs of the users. A typical TPIPT consists of a network of development planners, Operational Command users, technology planners from Air Force laboratories, logistics center planners, system engineers, and representatives from test organizations, program offices, and intelligence agencies. TPIPTS are organized by mission or functional area to gather, analyze, coordinate, and disseminate information in each Air Force mission area. Each product, logistics, and test center may have several TPIPTS organized according to applicable mission areas and led by development planners in XR.

Technology Modernization - The coupling of modernization with the implementation of advanced manufacturing technology by providing incentives for contractor (and subcontractor) capitalization.

Technology Needs Assessment - Assessment of the operational requirements and conceptual designs resulting from Concept Exploration Studies to determine the types of technology which need to be applied to the conceptual designs so that operational requirements can be accomplished.

Test - Any program or procedure which is designed to obtain, verify, or provide data for the evaluation of research and development objectives; or performance experiments); progress in accomplishing development objectives; or performance and operational capability of systems, subsystems, components, and equipment items.

Test and Evaluation (T&E) - Process by which a system or components are compared against requirements and specifications through testing. The results are evaluated to assess progress of design, performance, supportability, etc. There are three types of T&E - Development (DT&E), Operational (OT&E), and Production Acceptance (PAT&E) - - occurring during the acquisition cycle. DT&E is conducted to assist the engineering design and development process and to verify attainment of technical performance specifications and objectives. OT&E is conducted to estimate a systems operational effectiveness and suitability, identify needed modifications, and provide information on tactics, doctrine, organization, and personnel requirements. PAT&E is conducted on production items to demonstrate those items meet the requirements and specifications of the procuring contracts or agreements. OT&E is further subdivided into two phases - Initial Operational (IOT&E) and Follow-on Operational (FOT&E). IOT&E must be conducted on a

system as close to a production configuration as possible, in an operationally realistic environment, by typical user personnel. FOT&E is conducted on the deployed system to determine if operational effectiveness and suitability is, in fact, being attained.

Test Integration Working/Test Planning Working Group - A working group designed to facilitate the integration of test requirements through close coordination between the material developer; combat developer and operational tester in order to minimize development time and cost and preclude duplication between developmental and operational testing.

Test Management Council (TMC) - Reviews design test and evaluation program progress in relation to overall program goals and objectives.

Test Plan Working Group (TPWG) - The TPWG acts as a forum for test and evaluation (T&E) related subjects. The TPWG helps draft the test and evaluation master plan.

Threat - The sum of the potential strengths, capabilities and strategic objectives of any adversary which can limit or negate U.S.mission accomplishment or reduce force, system or equipment effectiveness.

Threat Environment Description (TEDs) - TEDs are HQ USAF/IN-approved, contractor-releasable references for threat information associated with US Air Force mission areas and other specialized tasks. They have applicability throughout the acquisition process. TEDs serve as threat documents for pre-Milestone 0 analyses, and may be used in support of programs not subject to the Air Force Systems Acquisition Review Council (AFSARC) and Defense Acquisition Board (DAB) milestone review process. They support System Threat Assessment Reports (STARs) as complementary documents by addressing an entire Air Force mission area, thus providing a breadth and scope not found in STARs. They may also serve as an initial basis from which to develop a STAR.

Threat Environment Projection (TEP) - The TEP is an overview of the operational, physical, and technological environment in which the system will have to function during its lifetime. Developments and trends which can be expected to affect mission capability should be projected out to the end of the system life cycle. Areas covered should include enemy doctrine, strategy, and tactics affecting system mission and operations. Threat content and emphasis will vary based on the program or area of interest being addressed.

Threat Planning Document - A threat document that is identical in formal and content to a System Threat Assessment Report (STAR) and Threat Assessment Report (TAR) and is prepared by the Director of Intelligence (DI) for programs that require a system-specific threat assessment but are below Air Force Systems Acquisition Review Council (AFSARC) level.

Threat Steering Group (TSG) - A joint-service and DoD ad hoc intelligence group that plans threat support of joint service or complex system acquisitions.

Threat Working Group (TWG) - Effective means of providing threat support to a program. It gives advice, guidance, and recommendations to the project manager on effective responses to the threat environment.

Thresholds - (1) Monetary, time, or resource limitations placed on a program, to be used as guides as the program progresses and the breaching of which is cause for careful review of at least some aspects of the program. (2) The minimum level a system must meet (e.g., performance threshold of 30k ft for a missile).

Timeline - A schedule line showing key dates and planed events.

Under Secretary of Defense (Acquisition) (USD(A)) - The USD(A) has policy and procedural authority for the defense acquisition system and is the principal acquisition official of the Department and is the acquisition advisor to the Secretary of Defense (SECDEF). In this capacity the USD(A) serves as the Defense Acquisition Executive (DAE), the Defense Procurement Executive and the National Armaments Director, the last regarding matters of the North Atlantic Treaty Organization (NATO). For acquisition matters, the USD(A) takes precedence over the Secretaries of the Services after the SECDEF and Deputy SECDEF. The USD(A) authority ranges from directing the Services and Defense Agencies on

acquisition matters, to establishing the Defense Supplement to the Federal Acquisition Regulation (FAR) and chairing the Defense Acquisition Board (DAB) for major defense acquisition program reviews.

Using Command - Usually the same as the Operating Command. Typically, the ultimate operators of a system. There are some exceptions (i. e., Headquarters, Air Combat Command) which can be the using command for a reconnaissance satellite for which Air Force Space Command is operating command.

User - command, unit or element which will be the recipient of the production item for use in accomplishing a designated mission.

Validation Authority - Validation represents agreement with the need expressed in a Mission Need Statement (MNS). Validation of a MNS is determined by both the Acquisition Category level and the type of MNS (i.e., single command, multi-command, joint, etc.).

Weapon System - Items that can be used directly by the armed forces to carry out combat missions and that cost more than $100,000 for which the eventual total procurement cost is more than $10,000,000. A weapon system is used by the armed forces to "war fight." It includes all equipment and systems used by a combatant command; i.e., trucks, trailers, radios, etc., as well as ordnance, guns and the like to perform a specified function or meet a mission need.

Work Breakdown Structure (WBS) - A product-oriented family tree division of hardware, software, services, and other work tasks which organizes, defines, and graphically displays the product to be produced, as well as the work to be accomplished to achieve the specified product.

Working Group - A one-time, periodic, or on-going activity which pulls together appropriate management and/or technical expertise to direct, assist, guide, or execute an assigned task. Working groups are typically formed to manage and execute a specified task.

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APPENDIX B

PLANS AND DOCUMENTS

MILESTONE (MS) 0 DOCUMENTATION REQUIREMENTS

	ACAT LEVEL			
FORMAL DOCUMENTS (format in DoD 5000.2-M)	I	II	III	IV
Mission Need Statement (MNS)	X	X	X	X
Defense Intelligence Agency Report (DIA) Intelligence Report	O	O	O	
Acquisition Decision Memorandum (ADM)	O	O	O	O
TECHNICAL PLANNING DOCUMENTS				
Government-level Systems Engineering Master Plan (SEMP) Outline	X	X	X	X
Program Protection Plan (PPP)	X	X	X	X
Logistic Support Analysis (LSA) Strategy	X	X	X	X
Strawman Baseline Concepts Descriptions (BCDs)	X	X	X	X
Strawman Systems Requirements Document (SRD)	X	X	X	X
Strawman Systems Engineering Management Schedule (SEMS)	X	X	X	X

X: Prepared By Service Operating Command/Project Team O: Prepared by OSD Staff

Table 1 Pre-MS 0 Plans and Documents

FORMAL DOCUMENTS:

Mission Need Statement (MNS) - A document prepared to identify a requirement for a materiel solution to satisfy a mission deficiency. Prepared by Service/Unified and Specified Commands Joint Staff/OSD Staff. Approved or validated by Chairman, Joint Requirements Oversight Council (JROC). Prepared pre-MS 0 for ACAT I, II, III, and IV programs (C12).

Defense Intelligence Agency (DIA) Intelligence Report - Validates the basis for the threat in the MNS. Prepared by the DIA for ACAT ID programs. Approved or validated by the Director, Defense Intelligence Agency (DIA). Not required for ACAT IC programs (A5).

Intelligence Report - Validates the basis for the threat in the MNS. Prepared by the Component Intelligence Command/Agency. Approved or validated by the Director, Component Intelligence Command/Agency. Prepared pre-MS 0 for ACAT II and III programs.

Acquisition Decision Memorandum (ADM) - Provides the decisions of the Milestone Decision Authority (MDA) (including approval of the Acquisition Strategy Report (ASR) if not approved prior to the MS) and the exit criteria for the next phase of the project. Prepared by DAB Executive Secretary for ACAT ID programs. Prepared by AFAE's Staff Executive Secretary for ACAT 1C programs. Prepared by MDA Staff for ACAT II, III, and IV programs (A22).

TECHNICAL PLANNING REFERENCES:

SEMP Outline - The government SEMP provides a roadmap of required technical efforts to support a "system" throughout its life cycle. It defines what must be done, who is going to do it, what milestones it must be done by, input data owners, output data users, data management concept, and success criteria (D20B).

PPP - Identifies essential project information, technology and systems to be protected. It creates a management plan which outlines the measures that need to be taken by the project manager to protect the system throughout the acquisition process (D20B).

LSA Strategy - Mission area mission needs analyses are performed on a continuing basis to include supportability and sustainability considerations within mission areas. Program requirements grow out of these analyses (D20B).

Strawman BCDs - The BCD is a working document, providing the system design concepts in an easily understood format. It is an iterative system engineering aid, used throughout the acquisition phases of a system. It forms the common baseline for understanding the proposed candidate concepts identified, and provides a common understanding from which the SEMP and SEMS can be generated (D20B).

Strawman SRD - The initial source of requirements is the MNS. The MNS is produced through government Mission Needs Analysis (MNA) studies which precede the Concept Exploration and Definition (CE&D) phase. These requirements are often summarized for the contractors in aN SRD. During the CE&D phase, requirements from the SRD are further analyzed by each contractor through the systems engineering process and incorporated into the system specification and flowed down to the lower level (D20B).

Strawman SEMS - A top-level process control and progress measurement tool to ensure completion of identified accomplishments. The SEMS accomplishments, with their supporting criteria, shall include those necessary to provide critical technical inputs and decision data into engineering (technical) and project decision points, demonstrations, reviews and other identified events (D20B).

MILESTONE I DOCUMENTATION REQUIREMENTS

	ACAT LEVEL			
FORMAL DOCUMENTS (format in DoD 5000.2-M)	**I**	**II**	**III**	**IV**
Operational Requirements Document (ORD)	X	X	X	X
System Threat Assessment Report (STAR)	X			
System Threat Assessment (STA)		X	X	X
Integrated Program Summary (IPS)	X	X	X	X
Program Life Cycle Cost Estimate	X	X	X	X
Acquisition Program Baseline (APB)	X	X	X	X
Test & Evaluation Master Plan (TEMP)	X	X	X	X
Component Cost Analysis (CCA)	X	X	X	X
Cost & Operational Effectiveness Analysis (COEA)	X	X	X	X
Defense Intelligence Agency Report (DIA) Intelligence Report	O	O	O	
Joint Requirements Oversight Council (JROC) Report	O			
Integrated Program Assessment (IPA)	O	O	O	O
Independent Cost Estimate (ICE) Report	O			
Acquisition Decision Memorandum (ADM)	O	O	O	O
FUNCTIONAL PLANS				
Integrated Weapon System Master Plan (IWSMP)	X	X	X	X
Systems Engineering Management Plan (SEMP)	X	X	X	X
Systems Engineering Master Schedule (SEMS)	X	X	X	X
Risk Management Plan (RMP)	X	X	X	X
Program Protection Plan (PPP)	X	X	X	X
Integrated Logistics Support Plan (ILSP)	X	X	X	X
Pollution Prevention Action Plan (PPAP)	X	X	X	X
Nuclear Certification Plan (NCP) (if necessary)	X	X	X	X
Cost Analysis Requirements Description (CARD)	X	X	X	X
Program Management Plan (PMP) (May be used on non-major programs, generally not used on major programs)	X	X	X	X
System Security Master Plan (SSMP)	X	X	X	X
Computer Resources Life Cycle Management Plan (CRLCMP)	X	X	X	X

X: Prepared by Military Dept/Project Team O: Prepared by OSD Staff

Table 2 - Milestone I Plans and Documents

FORMAL DOCUMENTS:

Operational Requirements Document (ORD) - Identifies minimum acceptable performance requirements to satisfy the operational need; also includes performance objectives that would provide operationally meaningful increases in capability. Prepared by Operational Command. DoD 5000.2M, Part 3 contains preparation procedures and format (C19 and C26).

System Threat Assessment Report (STAR) - The STAR is the authoritative reference for threat data supporting a major acquisition program. STARs are required for ACAT IC and ID programs, and for major modifications. The STAR will analyze current, projected and reactive threats the system will face. Prepared by Component Intelligence Command/Agency. DoD 5000.2M, Part 5 contains preparation procedures and format (D50, D56).

System Threat Assessment (STA) - The STA is the authoritative threat reference for threat data supporting ACAT II-IV programs. STAs for ACAT II programs are stand-alone documents of about 25

pages. STAs for ACAT III-IV programs are contained in the ORD. Prepared by the Air Force Intelligence Command/Agency. For procedures and format requirements, see DoD 5000.2M, Part 5, as STAs are formatted like the STARs (B11, D50).

Integrated Program Summary (IPS) - The purpose of the IPS is to provide a succinct integrated picture of the program status for use by the MDA and supporting, and review forums. It highlights the status of critical areas and plans for future acquisition. At MS I, the IPS shall summarize the results of Phase 0, CE&D. When writing the IPS the project team needs to identify and provide the following information:

(a) The most promising concept(s) to be carried into Phase I, Demonstration and Validation, for demonstration and further development, and the reasons for elimination of alternative concepts.

(b) The risk reduction efforts to be accomplished during Phase I.

(c) The trade-off decisions to be made for MS I, and recommended to be made for MS II, by the MDA.

(d) The design alternatives and trade-offs to be evaluated during Phase I.

(e) A summary of the program life-cycle cost estimate, independent cost estimate, affordability assessment and proposed concept baseline.

(f) The DoD Component proposed project acquisition strategy and any proposed waivers.

(g) The ASR discusses the basic acquisition strategy being pursued. As part of the IPS, it summarizes the entire planned program structure from Demonstration and Validation through Production and Deployment. Requests for Proposals (RFPs) for the Dem/Val phase may not be released until the MDA has approved the ASR. The ASR is not to be confused with the Acquisition Plan (AP) which describes the acquisition strategy only for the current phase. The ASR should discuss the transition of critical technologies in technology demonstration programs to prototypes and engineering development models, plans for reducing risk, nondevelopment items, evolutionary acquisition, and preplanned product improvements in the context of the operational requirements and the management approach to the acquisition.

The IPS is a statutorily imposed requirement prepared by the project manager. The final IPS approved by the SAE will be submitted to the Defense Acquisition Board (DAB) Executive Secretary no later than 10 working days prior to the DAB Committee review.

The IPS concept will be used by the DoD Component MDA for ACAT IC, II, III and IV programs; however, the documentation content should be appropriately tailored for ACAT II, III and IV programs. DoD 5000.2M, Part 4, contains preparation procedures and format (D58).

Program Life Cycle Cost Estimate - Documents the project teams life cycle cost estimate of the project. Used by the MDA along with the Component Cost Analysis (CCA) to determine the acquisition program baseline cost estimate and affordability of the program. This plan is prepared by the project manager. DoD 5000.2M, Part 15 contains preparation procedures and format (D71).

Acquisition Program Baseline Agreement (APB) - Documents the cost, schedule, and performance baseline agreement between the MDA and project team. Prepared by the project team. DoD 5000.2M, Part 14, contains preparation procedures and format (D51).

Test and Evaluation Master Plan (TEMP) - Lists the critical developmental test and operational test objectives and outlines the testing and evaluation approach and methodology. Prepared by the project team. DoD 5000.2M, Part 7 contains preparation procedures and format (D54).

Component Cost Analysis (CCA) - Documents the Air Force Independent Life-Cycle Cost Estimate. Prepared by the Air Force. DoD 5000.2M, Part 15 contains preparation procedures and format (B21). Cost and Operational Effectiveness Analysis (COEA). Analyzes the comparative cost-effectiveness of alternatives at MS I and II. At MS III and IV it is updated. Prepared by an independent Analysis Activity. DoD 5000.2M, Part 8 and AFMCP 73-1 contains preparation procedures and format (C21, C25, D48).

Defense Intelligence Agency (DIA) Intelligence Report - Validates the basis for the threat in the Mission Need Statement (MNS) and the STAR. Prepared by the DIA for ACAT ID programs (A5).

Intelligence Report - Validates the basis for the threat in the MNS and the STA. Prepared by the Air Force Intelligence Command/Agency (B6).

Joint Requirements Oversight Council (JROC) Assessment - Verifies the need and confirms that the proposed performance objectives and thresholds to be contained in the program baseline satisfy the operational need. Prepared by the JROC (A16).

Integrated Program Assessment (IPA) - Summarizes the independent assessment of the project. Identifies critical areas, issues and recommendations for the MDA. Uses the same format as the IPS. Prepared by the Defense Acquisition Board (DAB) committee staff specialist for the committee chairman's signature. It represents committee findings for DAB designated programs or documents the results of the committee review (A21).

Independent Cost Estimate (ICE) Report - Documents the OSD Cost Analysis Improvement Group (CAIG) Assessment of the Air Force Independent life-cycle cost estimate (CCA) and provides the OSD CAIG cost position on the program. Prepared at the OSD level by Program Analysis and Evaluation (PA&E) (A17).

Acquisition Decision Memorandum (ADM) - Provides the decisions of the MDA (including approval of the ASR if not approved prior to the MS) and the exit criteria for the next phase of the project. Prepared by DAB Executive Secretary for ACAT ID programs. Prepared by AFAE's Staff Executive Secretary for ACAT 1C programs (A22).

Integrated Weapon System Master Plan (IWSMP) - This plan addresses both the acquisition phase and the evolution and sustainment phase of a weapon system. The IWSMP will define the weapon system evolution throughout the system life cycle. It will be agreed to by the developer/supporter and the customer and will allow coordinated budgeting and tradeoffs to be made with full knowledge of what is forecasted for the future. IWSMP is required by AFR 400-3, Weapon System Program Management, Jun 89. It has been recommended that the IWSMP be completed at MS I and should continue throughout the life of the project. POC is AFMC/XRM, DSN 787-7596.

Systems Engineering Management Plan (SEMP) - A concise top level technical management plan for the integration of all systems engineering activities. For plan development see DODI 5000.2, Part 6; MIL-STD-499B (draft), Systems Engineering, 6 May 92 (D20B, D55).

Systems Engineering Master Schedule (SEMS) - A top-level process control and progress measurement tool to ensure completion of identified accomplishments. The SEMS accomplishments, with their supporting criteria, shall include those necessary to provide critical technical inputs and decision data into engineering (technical) and project decision points, demonstrations, reviews and other identified events. For SEMS development see MIL-STD-499B (draft), Systems Engineering, 6 May 92 (D20B, D55).

Risk Management Plan (RMP) - Defines how risk analysis will be performed. The purpose of the risk analysis is to anticipate the significant things that could go wrong, develop contingency plans in case they do go wrong, and estimate the cost and schedule impact for each area of risk. For plan development see DoD Directive 5000.1, Defense Acquisition, Part 1 (D37B, D55).

Program Protection Plan (PPP) - Identifies essential project information, technology and systems to be protected. It creates a management plan which outlines the measures that need to be taken by the project manager to protect the system throughout the acquisition process. For plan development see DoD Instruction 5000.2, Part 5.

Integrated Logistics Support Plan (ILSP) - Describes the concepts, resource requirements, tasks, schedules, and subordinate plans associated with each Integrated Logistics Support (ILS) element. The ILS effort encompasses the following elements: maintenance planning; manpower and personnel; supply support; support equipment; technical data; training and training support; computer resources support; facilities; packaging, handling, storage, and transportation; design interface. For plan development see AFLC/AFSC Pamphlet 800-34, Acquisition Logistics Management, Chapter 10, 13 Apr 87; AFR 800-8, Integrated Logistics Support (ILS) Program, Atch 5, Jun 86 (C19. D20B).

Pollution Prevention Action Plan (PPAP) - This is a new plan to be incorporated into system milestones. The plans major objectives are to show how the Air Force will:

- reduce the use of hazardous materials in new and existing weapon systems
- reduce the use of hazardous materials and waste generation at installations and Government Owned Contractor Operated (GOCO) facilities
- acquire state-of-the-art pollution prevention technologies
- apply new technology to pollution prevention, from outside or from Air Force research
- establish investment strategy to fund the pollution prevention program.

The policy for the Air Force ban on purchases of Ozone Depleting Chemicals (ODCs) implements the National Defense Authorization Act for Fiscal Year 1993, Title III, Section 326 (Public Law 102-484 policy on ODCs). Effective January 1, 1993 the Air Force instituted policy on the purchase, use, and management of controlled ODCs. The DFARS and AFFARS on implementing Ozone Depleting Substance (ODS) restrictions and purchase bans became official through Air Force Acquisition Circular (AFAC) 92-29, 27 May 93. The most serious implication to the SPOs from these regulations are the following requirements: Original contracts in excess of $10 million in value, with modifications or extensions extending 1 year, initiated after 1 Jun 93 must be evaluated for the elimination of ODS. The evaluation must be carried out within 60 days. No further modification may be made until the evaluation is complete. In the absence of additional guidance, many programs may slip while meeting these requirements. ASC/EM has highlighted these SPO concerns to the AFMC Pollution Prevention IPT. Pollution prevention will be institutionalized into acquisition by the end of 1994. (See Air Force Chief of Staff memo, Air Force Ban on Purchases of Ozone Depleting Chemicals (ODCs) - ACTION MEMORANDUM, dated 7 Jan 93 and ASC Environmental Protection Committee briefing, 15 Jan 93).

Nuclear Certification Plan (NCP) (if necessary) - This plan provides overall guidance and policy concerning the nuclear certification aspects of the project (if applicable). It identifies nuclear certification and safety activities that must be accomplished, and identifies major contributors and/or responsibilites of the participants in the nuclear certification and safety projects. It serves as an integrated, cohesive plan to accomplish the required nuclear certification tasks. For plan procedures see AFR 122-1, The Air Force Nuclear Weapon Surety Program and ASC/ENS Nuclear Certification Handbook, Feb 87.

Cost Analysis Requirements Description (CARD) - The CARD describes the complete program and will be used as the basis on which the project office and Air Force cost analysis teams prepare the program life-cycle cost estimates. For plan procedures see DoD 5000.4-M (D52).

The Program Management Plan (PMP) - Certain nonmajor programs may use a PMP to replace all the functional plans, but the PMP is generally not used on major programs. This plan shows the integrated time-phased tasks and resources required to accomplish each task specified in the PMD.

System Security Master Plan (SSMP) - Outlines the procedures and actions required to design, develop, manufacture, and deploy a secure weapon system that will inhibit or prevent overt or covert ground threat action. This plan may be tailored into the SEMP. For plan procedures see MIL-STD-1785 (D20A).

Computer Resources Life Cycle Management Plan (CRLCMP) - The management approach, decisions, and plans associated with computer resources is documented in the CRLCMP. Computer resources include hardware, firmware, software, services, support services, supplies, and spare parts. This plan is developed in conjuction with the ILSP to ensure software supportability is properly addressed during development. The plans will cross-reference each other. For plan procedures see DoD 5000.2, Part 6.

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APPENDIX C

TASK BREAKDOWN STRUCTURE RESPONSIBILITY MATRIX

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ASC/YX PROGRAM DEVELOPMENT PROCESS (PDP)

TASK BREAKDOWN STRUCTURE AND RESPONIBILITY MATRIX

0.1 - IDENTIFY NEED								Project Team							
TBS	IFC BLOCKS	Page Number	ACTIVITY TITLE	[redacted]	[redacted]	[redacted]	[redacted]	Operating Command	CY	EN	AL	FM	PK	XR	YX
0.1			Identify Need												
0.1.1			Review Defense Planning Guidance												
0.1.1.1	A1	D-1	Review National Defense Planning			[redacted]		P	S					S	
0.1.1.2	B1	D-87	Review Air Force Planning Guidance			[redacted]		P	S					S	
0.1.2	C4	D-173	Review Mission Area Plans			[redacted]		P	S					S	S
0.1.3	D3	D-255	Establish Link(s) with Industry					A	S					P	
0.1.3.1	D29	D-353	Industry/Government Programs IR&D											P	S
0.1.4	C1	D-165	Conduct Mission Area Assessment (MAA)			[redacted]		P	S					S	S
0.1.5	C2	D-167	Develop Concept of Operations (CONOPS)					P						S	S
0.1.6	C5	D-181	Identify Study Inputs											S	S
0.1.6.1	C5	D-181	Identify Study Groundrules and Assumptions			[redacted]		P	S	S	S	S		S	S
0.1.6.2	A2,B2,C5	D-3/89/181	Identify Threat and Scenarios			[redacted]		P	S					S	S
0.1.6.3	C5	D-181	Identify Force Structure			[redacted]		P	S					S	S
0.1.7	C3	D-171	Conduct Mission Need Analysis (MNA)					P						S	S
0.1.7.1	C6,D4	D-185/261	Conduct Deficiency Analyses			[redacted]		P,A	S	S	S	S		P	S
0.1.7.2	C7,D7	D-189/273	Assess Non-Materiel Alternatives			[redacted]		P,A	S	S	S	S		P	S
0.1.8	D5	D-265	Assess Technology Areas					P	S	S	S	S		S	S
0.1.8.1	D30	D-359	Lab Advanced Technology Development							S				P	S
0.1.9			Identify Potential System Alternatives												
0.1.9.1	D9	D-277	Develop Prelim System Concept Options (SCOs)					S	S	S	S	S		P	S
0.1.9.2	D13	D-283	Determine Applicability of NDI (First Look)					S	S	S	S	S		P	S
0.1.9.3	D14	D-287	Identify Coop Development Opportunities			[redacted]		P	S					S	S
0.1.9.4	D15	D-291	Establish Database			[redacted]		S	S	S	S	S		P	S
0.1.9.5	D77	D-591	Develop Preliminary Program Cost Estimate					S	S	S	S	S		P	S
0.1.9.6	D17	D-301	Update Mission Area Development Plans					P,A	S	S	S	S		S	S
0.1.9.7	D18	D-305	Prepare Technology Guidance					A,S	S	S	S	S		P	S
0.1.9.8			Insert Initial Budget Wedge into POM/BES												
0.1.9.8.1	C9	D-191	Submit Preliminary Budget Request			[redacted]		P				S		S	S
0.1.9.8.2	B5	D-93	Submit Initial POM/BES Input		[redacted]	[redacted]						S		S	S
0.1.9.8.3	A4	D-7	Update POM/BES	[redacted]	[redacted]									S	S

P = PRIMARY RESPONSIBILITY S=SUPPORTING ROLE A=APPROVAL AUTHORITY

ASC/YX PROGRAM DEVELOPMENT PROCESS (PDP)

TASK BREAKDOWN STRUCTURE AND RESPONIBILITY MATRIX

0.2 - DEVELOP AND APPROVE MNS

TBS	IFC BLOCKS	PAGE NUMBER	ACTIVITY TITLE	ASC/CC	ASC/EC	ASC/EN	ASC/AL	Project Team: Operating Command	CY	EN	AL	FM	PK	XR	YX
0.2			Develop and Approve MNS												
0.2.1			Develop Draft MNS												
0.2.1.1	C12	D-199	Write Preliminary MNS			●		P	S	S	S	S		S	S
0.2.1.2	C11	D-195	Establish IMPACTS Planning Team					P			S			S	S
0.2.1.3	C13	D-203	Staff and Coordinate MNS (User)			●		P,A	S					S	S
0.2.2			Review and Approve MNS												
0.2.2.1	B6	D-97	Approve MNS Threat (USAF/IN)			P,A		S							
0.2.2.2	A5	D-11	Validate MNS Threat (DIA)			P		S							
0.2.2.3	B7	D-101	Staff and Coordinate MNS (Air Staff)			P,A		S							
0.2.2.4	A6	D-15	Staff and Coordinate MNS (JROC)			P		S							
0.2.2.5	B9	D-109	Conduct AFSARC Review			P		S	S			S		S	S
0.2.2.6	A8	D-23	Conduct JROC Review			P		S	S					S	S
0.2.2.7	A9	D-27	Conduct DAB Milestone 0 Review	●	●	●		S	S					S	S
0.2.3			Issue Concept Studies Direction												
0.2.3.1	A9	D-27	Write and Issue Phase 0 ADM	P,A	●	●		S	S					S	S
0.2.3.2	B10	D-113	Write and Issue Phase 0 PMD		●	P,A		S	S					S	S

P = PRIMARY RESPONSIBILITY S=SUPPORTING ROLE A=APPROVAL AUTHORITY

ASC/YX PROGRAM DEVELOPMENT PROCESS (PDP)

TASK BREAKDOWN STRUCTURE AND RESPONIBILITY MATRIX

1.1 - PLAN AND ORGANIZE FOR PHASE 0

TBS	IFC BLOCKS	PAGE NUMBER	ACTIVITY TITLE	OSD / HQ USAF	SAF/AQ	SAF/FM	JCS	Operating Command	CY	EN	AL	FM	PK	XR	YX
								Project Team							
1.1			Plan and Organize for Phase 0												
1.1.1			Develop Draft Phase 0 Plans												
1.1.1.1	C14	D-207	Develop Draft Phase 0 Plans (Lead MAJCOM)			A		P	S					S	S
1.1.1.2	D20A	D-309	Develop Draft Phase 0 Plans (AFMC Centers)					A	S	S	S	S	S	P	S
1.1.1.3	D20B	D-319	Develop Draft Technical Plans (AFMC Centers)					A	S	S	S	S	S	P	S
1.1.1.4	D34	D-371	Develop Phase 0 Contracted Studies Strategy			A		A	S				S	P	S
1.1.1.5			Update Budget Estimates												
1.1.1.5.1	C15	D-213	Update Budget Request			A		P	S			S		S	S
1.1.1.5.2	B8	D-105	Update POM/BES Input		A	P		S				S		S	S
1.1.1.5.3	A7	D-19	Update POM/BES	A	P			S				S		S	S
1.1.2	D21	D-325	Assign Lead and Support Centers (AFMC)				PA		S						
1.1.3	D78	D-595	Assign Lead and Support Orgs (AFMC Centers)						P						
1.1.4			Update Phase 0 Plans												
1.1.4.1	C16	D-217	Update Phase 0 Plans (Lead MAJCOM)			A		P	S					S	S
1.1.4.2	D22	D-333	Update Phase 0 Plans (AFMC Centers)					A	S	S	S	S	S	S	P
1.1.4.3	D23	D-339	Update Technical Plans (AFMC Centers)					A	S	S	S	S	S	S	P
1.1.4.4	D31	D-365	Update Database			A		S	S	S	S	S	S	S	P
1.1.4.5			Obtain Intel Support												
1.1.4.5.1	B11	D-117	Obtain USAF/IN Threat Support			A		P							
1.1.4.5.2	A10	D-33	Obtain DIA Threat Support			A		P							

P = PRIMARY RESPONSIBILITY S=SUPPORTING ROLE A=APPROVAL AUTHORITY

ASC/YX PROGRAM DEVELOPMENT PROCESS (PDP)

TASK BREAKDOWN STRUCTURE AND RESPONIBILITY MATRIX

1.2 - EVOLVE REQUIREMENTS AND CONCEPTS

TBS	IFC BLOCKS	PAGE NUMBER	ACTIVITY TITLE	Operating Command	CY	EN	AL	FM	PK	XR	YX
1.2			Evolve Requirements and Concepts								
1.2.1			Explore Concept Alternatives								
1.2.1.1	D35	D-375	Procure Contracted Studies	A	S	S	S	S	P	S	P
1.2.1.2	D37	D-381	Conduct Concept Exploration Studies	S	S	S	S	S		S	P
1.2.1.3	D27	D-345	Explore Use of NDI	S		S				S	P
1.2.1.4	D28	D-349	Explore Cooperative Opportunities	P							
1.2.1.5	D45	D-421	Conduct Alternative Systems Review (ASR)	S	S	S	S	S		S	P
1.2.1.6	D44	D-415	Update Database	S	S	S	S	S		S	P
1.2.1.7	D43	D-407	Assess Technology Needs	S	S	S	S	S		S	P
1.2.2			Develop Operational Requirements								
1.2.2.1	C19	D-227	Develop Draft ORD I	P		S	S	S		S	S
1.2.2.2	C26	D-243	Staff and Coordinate ORD I (User)	P							
1.2.2.3	B14	D-125	Prepare for Requirements Summit	P	S					S	S
1.2.2.4	B15	D-129	Conduct Requirements Summit	P						S	S
1.2.3			Identify Preferred Alternative(s)								
1.2.3.1	C17	D-225	Review and Approve COEA I Plan	P						S	S
1.2.3.2	C21	D-231	Select COEA I Concepts	P						S	S
1.2.3.3	D48	D-439	Conduct COEA Comparative Analysis	P						S	S
1.2.3.4	D46	D-429	Conduct Program Alternatives Assessment (PAA)		S					S	P
1.2.3.5	D49	D-447	Update Database	S	S	S	S	S		S	P
1.2.3.6	D47	D-435	Update Program Cost Estimate	A				S		S	P
1.2.3.7	C25	D-241	Select Preferred Alternative(s)	P						S	S
1.2.3.8			Update Budget Estimates								
1.2.3.8.1	C22	D-233	Review Cost Estimate & Update Budget Request	P				S		S	S
1.2.3.8.2	B13	D-121	Update POM/BES Input					S		S	S
1.2.3.8.3	A12	D-37	Update POM/BES							S	S
1.2.3.9	C23	D-237	Staff and Coordinate COEA I Report	P	S					S	S
1.2.3.10	C29	D-251	Brief COEA I Results to OASD(PA&E)	P	S					S	S
1.2.4			Define Preferred Alternative(s)								
1.2.4.1	D37B	D-389	Conduct Concept Definition	S	S	S	S	S		S	P
1.2.4.2	D41	D-399	Define Use of NDI	S	S	S	S	S		S	P
1.2.4.3	D42	D-403	Define Cooperative Opportunities	P							S
1.2.4.4	D45B	D-425	Conduct Preferred Alternative(s) Review	S	S	S	S	S		S	P
1.2.4.5			Update Program Cost Data								
1.2.4.5.1	D52	D-463	Develop DRAFT CARD	A				S		S	P
1.2.4.5.2	D53	D-467	Update Program Cost Estimate	A				S		S	P
1.2.4.5.3	C27	D-247	Review Cost Estimate & Update Budget Request	P				S		S	S
1.2.4.5.4	B16	D-133	Update POM/BES Input					S		S	S
1.2.4.5.5	A13	D-41	Update POM/BES							S	S
1.2.4.5.6	D72	D-567	Update CARD					S		S	P
1.2.4.5.7	D71	D-561	Submit MS I Program Cost Estimate	A				S		S	P
1.2.4.6	D73	D-571	Update Database	S	S	S	S	S		S	P

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ASC/YX PROGRAM DEVELOPMENT PROCESS (PDP)

TASK BREAKDOWN STRUCTURE AND RESPONIBILITY MATRIX

1.3 - PLAN AND ORGANIZE FOR PROGRAM

TBS	IFC BLOCKS	PAGE NUMBER	ACTIVITY TITLE	SPO / PEO	Program Office	Contractor	JPO	Project Team: Operating Command	CY	EN	AL	FM	PK	XR	YX
1.3			Plan and Organize for Program												
1.3.1			Initiate STA(R), APB, and TEMP												
1.3.1.1	D50	D-453	Develop Preliminary STA(R)		P	P		S	S					S	P
1.3.1.2	D51	D-459	Develop Preliminary APB		P		P		S					S	P
1.3.1.3	D54	D-473	Develop Preliminary TEMP				P		S					S	P
1.3.1.4	D56	D-485	Update STA(R)		P				S					S	P
1.3.2			Execute Int A[illegible] Strategy Process (IASP)												
1.3.2.1	D55	D-481	Develop Roundtable Execution Plans				A		S				S	S	P
1.3.2.2	D57	D-489	Conduct Strategic Roundtable		P	P	P		S				S	S	P
1.3.2.3	D58	D-493	Develop Acquisition Strategy		P	P	P		S				S	S	P
1.3.2.4	D59	D-497	Conduct Tactical Roundtable		P	P	P		S				S	S	P
1.3.2.5	D60	D-501	Draft MS I Docs and Functional Plans		P	P	P	S	S	S	S	S	S	S	P
1.3.2.6	D60	D-501	Complete ASR						S				S	S	P
1.3.2.7	D61	D-497	Review and Approve Acq Strategy (ASP)				P		S	S	S	S	S	S	P
1.3.2.8	D66	D-535	Develop Acq Plan (AP)						S				S	S	P
1.3.2.9	D67	D-539	Conduct Operational Roundtable				P		S				S	S	P
1.3.2.10	D68	D-543	Complete MS I Docs and Functional Plans		P	P	P	S	S	S	S	S	S	S	P
1.3.3			Conduct Contracting Activities												
1.3.3.1	D63	D-517	Establish and Train RFP Team						S	S	S	S	S	S	P
1.3.3.2	D65	D-527	Identify Potential Industry Players		P				S	S	S	S	S	S	P
1.3.3.3	D64	D-521	Prepare RFP						S	S	S	S	S	S	P
1.3.3.4	D62	D-511	Prepare and Approve SSP and Standards	A	A				S	S	S	S	S	S	P
1.3.3.5	D69	D-549	Release RFP	A									S	S	P
1.3.3.6	D70	D-553	Conduct Source Selection/Negotiations						S	S	S	S	S	S	P
1.3.3.7	D74	D-577	Award and Issue Contracts	A	A								S	S	P
1.3.4	D75	D-581	Assign Lead and Support Centers				P,A								
1.3.5	D79	D-599	Review New Work				P		S					S	
1.3.6	D76	D-587	Establish SPO (Lead Center)				P		S					S	

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ASC/YX PROGRAM DEVELOPMENT PROCESS (PDP)

TASK BREAKDOWN STRUCTURE AND RESPONIBILITY MATRIX

1.4 - REVIEW AND APPROVE PROGRAM

TBS	IFC BLOCKS	PAGE NUMBER	ACTIVITY TITLE	Other				Project Team							
				[illegible]	[illegible]	[illegible]	[illegible]	Operating Command	CY	EN	AL	FM	PK	XR	YX
1.4			Review and Approve Program												
1.4.1	A14	D-45	Validate STA(R) (DIA)		P										
1.4.2			Review and Approve ASR, AP, RFP, and SSP												
1.4.2.1	B17	D-137	Review ASR, RFP, SSP, and AP (SAF/AQ)		P			S							S
1.4.2.2	A15	D-49	Review and Approve ASR, RFP, and SSP (MD)	P,A				S							S
1.4.2.3	B17	D-137	Approve AP (SAF/AQ)		P,A			S							S
1.4.3			Conduct AFSARC/DAB Planning Meeting												
1.4.3.1	B19	D-141	Conduct AFSARC/DAB Planning Meeting (AF)		P	S		S	S						S
1.4.3.2	A23	D-83	Conduct DAB Planning Meeting (OSD)	P	S	S		S	S						S
1.4.4	B21	D-145	Conduct Component Cost Analysis (CCA)					S				S			S
1.4.5	B23	D-153	Conduct Air Force CAIG Review					S				S			S
1.4.6	B22	D-149	Review Milestone I Docs (Air Force)		P			S							S
1.4.7	B24	D-157	Conduct AFSARC Review		P			S							S
1.4.8	A17	D-57	Conduct OSD CAIG Review	P	S			S				S			S
1.4.9			Conduct Milestone I Reviews												
1.4.9.1	A18	D-63	Review Milestone Docs (DoD)	P				S							S
1.4.9.2	A19	D-67	Submit Final MS I Docs (Air Force)		P			S	S						S
1.4.9.3	A20	D-69	Conduct Committee Review (OSD)	P				S							S
1.4.9.4	A21	D-75	Write IPA (OSD)	P											
1.4.10	A16	D-23	Conduct JROC Reqts Review and Validation		P	S		S							S
1.4.11	A22	D-79	Conduct DAB Milestone I Review	P	S	S		S	S						S
1.4.12			Issue Program Direction												
1.4.12.1	A22	D-79	Write and Issue Phase I ADM	P	S	S		S	S						S
1.4.12.2	B25	D-161	Write and Issue Phase I PMD		P	S		S	S						S

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PDP GUIDE BOOK

Appendices

APPENDIX D

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1. **ELEMENT:** A1, TBS 0.1.1.1 (IFC 93-3)

2. **ELEMENT TITLE:** Review National Defense Planning

3. **ELEMENT OWNER(S):** The President of the United States

4. **ELEMENT STAKEHOLDER(S):** The President of the United States, Chairman of the Joint Chiefs of Staff (CJCS), the Office of the Secretary of Defense (OSD), theater commanders-in-chief (CINCs), the Under Secretary of Defense for Acquisition (USD(A)), Secretary of the Air Force (SAF), and the Chief of Staff of the Air Force (CSAF).

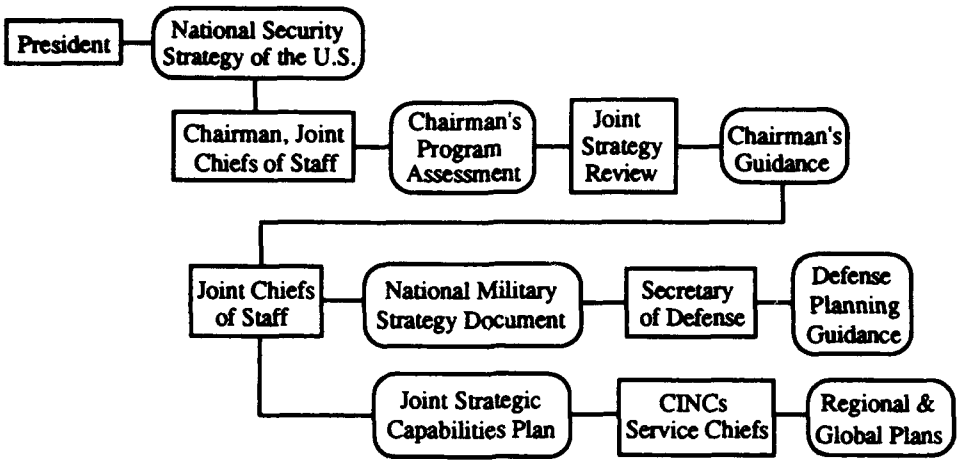
5. **REQUIREMENT:** DODD 5000.1, Part 2, paragraph B.2

6. **PURPOSE/OBJECTIVES:**

a. Purpose: To relate the President's guidance on national security interests and strategies and the use of military resources to protect these national interests.

b. Objectives: To formulate the nation's defense plans that would best utilize military resources to protect national interests.

7. **DESCRIPTION:** The President, with input from the National Security Council, issues the National Security Strategy of the United States, which provides guidance on national security interests and strategies. The CJCS reviews the Presidential guidance and formulates the use of military resources to protect these national interests. The CJCS provides his assessment in the Chairman's Program Assessment (CPA) document, which initiates the Joint Strategy Review (JSR) -- a process for gathering information, raising issues, and integrating strategy and operational planning with program assessments. The Chairman's Guidance (CG) document is the final product of this review, which provides top-down guidance to the Joint Staff and information to OSD, CINCs and other members of the JCS regarding the framework for building the National Military Strategy Document (NMSD). The NMSD is a JCS document that recommends military strategy and fiscally-constrained force structure to the President, National Security Council, and OSD. The NMSD is issued in the summer of odd-numbered years and is a major input to the formulation of the OSD's Defense Planning Guidance (DPG). The DPG outlines OSD's strategic plan for the development and employment of future forces and is issued in late fall of odd-numbered years. The JCS also puts together the Joint Strategic Capabilities Plan (JSCP), which contains guidance to the CINCs and Service Chiefs for the accomplishment of military tasks in the near term (2 years), given their service's capabilities and attributes. With these inputs, the CINCs produce regional and global plans and strategies tasking the services with specific missions and objectives, and the USD(A) identifies major mission areas requiring military capabilities to be developed to meet mission deficiencies. Studies and analysis organizations utilize these documents to update their campaign-level scenario databases so that their analyses are based on current global, national, and regional strategies. The service branches use these overall defense strategies and guidance to formulate their own strategies and guidance that best utilize their resources to protect national interests (B1).



8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Receipt of the President's National Security Strategy

b. Exit: Publication of the Defense Planning Guidance

9. KEY INPUTS/OUTPUTS:

a. Input: National Security Strategy of the United States

b. Outputs: National Military Strategy Document
Defense Planning Guidance
Joint Strategic Capabilities Plan

10. KEY REFERENCES: Air Force Instruction 10-601, paragraph 1.1.1

11. IMPLEMENTATION TOOLS: None identified

12. PLANNING GUIDANCE:

a. DURATION: The President's National Security Strategy is published every other year, consistent with the Program Objective Memorandum (POM) cycle.

b. CONSTRAINTS: None identified.

c. RESOURCES: AFMC/XP and AFMC/XR are on the distribution list for these documents.

d. LESSONS LEARNED: None identified.

e. BEST PRACTICES: None identified.

f. TRAPS: None identified.

1. **ELEMENT:** A2, TBS 0.1.6.2.1 (IFC 93-3)

2. **ELEMENT TITLE:** Intel Community Threat Information

3. **ELEMENT OWNER(S):** Defense Intelligence Agency (DIA), National Security Agency (NSA), and Central Intelligence Agency (CIA)

4. **ELEMENT STAKEHOLDER(S):** HQ USAF/IN, HQ AFISA/INA, HQ USAF/XOR, SAF/AQ, ASC/NAIC/TIA

5. **REQUIREMENT:**

a. DOD Directive 5000.1, Defense Acquisition, 23 Feb 91, Part 1. This directive addresses the purpose of intelligence threat assessments.

b. DIAR 55-3, Intelligence Support for Defense Acquisition Process, 30 Mar 92, Part10. This regulation describes threat development procedures.

c. AFR 200-13, Intelligence Support to the Requirements and Acquisition Processes, Jul 92. This regulation states the Air Force policy for identifying and acquiring intelligence to support the Air Force requirements and acquisition processes.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The production, review, and validation of intelligence information in support of defense acquisition programs.

b. Objectives: To ensure the effectiveness of each proposed system within its intended threat environment during its expected lifetime.

7. **DESCRIPTION:**

a. The intelligence community (DIA, NSA, CIA) is responsible for producing a wide variety of documents addressing threat information to determine if current military capabilities are sufficient to meet the envisioned threat scenario. It is through this information that threat based deficiencies are discovered, and needs for improved capability are conceived. Mission needs, and any resulting defense acquisition programs, are based on current authoritative threat information.

b. National Defense Planning (A1) relates the President's guidance on national security interests and strategies to use military resources to protect these national interests. The Defense Planning Guidance (DPG) outlines the OSD strategic plan for the development and employment of future forces. OSD and the Chairman of the Joint Chiefs of Staff (CJCS) produce documents, most notably the National Military Strategy Document and the DPG, providing guidance to theater commanders-in-chief (CINCs) and the military Services. Air Force Planning Guidance (B1) further relates the President's guidance on national security interests and OSD's DPG to Air Force strategies to use resources to protect these national interests.

c. The starting point for threat development is a variety of baseline documents which, as a group, address the period out 10 and 20 years in the future. The documents may include forecast threats in broad mission areas, as well as a number of more detailed capability projections in specialized areas. Some documents, such as the Defense Intelligence Projections for Planning, Defense Intelligence Assessments and Threat Environment Projections (TEPs) are produced by the DIA (for example, TEPs were produced to support the Major Aircraft Review and the Major Warship Review). Other documents,

such as the Navy Pyramid documents and the Air Force Threat Environment Descriptions (TEDs) (B2) are produced under the DIA-managed Science and Technology (S&T) production program. In addition, the Army intends to produce baseline threat products. For programs requiring action by the Joint Requirements Oversight Council (JROC), the appropriate baseline threat products produced and/or validated by DIA will be used to support the Mission Need Statement (MNS) (C12) and Milestone 0 Phase of program development.

d. In summary, the intelligence community makes sure the many aspects of intelligence are available to support the acquisition process. Threat information is produced to support the acquisition, planning, programming, and budgeting process. The DPG provides a broad overview of the expected threat environment and potential adversaries. The baseline documents produced and/or validated by DIA are used to support the MNS and MS 0. HQ USAF/IN ensures that special operations subjects are encompassed in the baseline documents and produces many generic threat documents. Upon request, DIA will provide broad guidance, assist with incorporation of material from relevent documents produced by other elements of the Intelligence Community, and review and/or valdiate the finished product. NAIC/TIA produce TEDs (B2) for the Air Force and the DoD. These baseline documents are written using Intelligence Community Threat Information.

8. **ENTRANCE/EXIT CRITERIA:**

a. Entrance: This element starts with availability of National Defense Planning Guidance (A1).

b. Exit: This element is complete when intelligence information has been produced, reviewed, and validated in support of defense acquisition programs to ensure the effectiveness of each proposed system within its intended threat environment.

9. **KEY INPUTS AND OUTPUTS:**

a. Inputs: National Military Strategy Document, Defense Planning Guidance, and the Joint Strategic Capabilities Plan (A1).

b. Outputs: Validated threat information that can support the development of the TEDs and Air Force mission needs (B2 and C12).

10. **KEY REFERENCES:**

a. DODI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 4. This instruction discusses intelligence support.

b. AF Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 6 Feb 93, Paragraphs 1.1.1 and 1.1.7. This regulation discusses national security assessment, strategy evolution, and threat assessment.

c. U. S. Naval Postgraduate School Thesis, An Investigation of the Assessment of Threat by Chadwick Hunter Dennis. Addresses threat assessment. A copy may be requested by contacting the Wright Laboratory Technical Library, WL/DOC, WPAFB, OH, DSN 785-7415.

11. **IMPLEMENTATION TOOLS:** Defense Department policy-makers depend on quality information. An efficient sorting and filtering of information into useful form is required. This is where systems analysts use their scientific approach and mathematical tools and their own decision processes. Thus, some of the most valuable threat information is produced by systems analysis (Ref. Thesis, "An Investigation of The Assessment of Threat" by Chadwick Hunter Dennis).

12. **PLANNING GUIDANCE:**

a. **DURATION:** The intelligence community (DIA, NSA, CIA) produces a wide variety of documents addressing threat information on a continuing basis.

b. **CONSTRAINTS:** The necessity of having current valid threat information available when needed is a key constraint.

c. **RESOURCES:** One project action officer may be assigned from the project team to interface with the intelligence community through the Product Center's Director of Intelligence (DI) (ASC/NAIC/TIA for ASC). This is not a full time job.

d. **LESSONS LEARNED:** Early and continued collaboration among the intelligence, requirements generation, and acquisition management communities should be maintained to ensure the timely availability of valid threat information.

e. **BEST PRACTICES:**

(1) The project team should participate with the intelligence community in the development and implementation of long range forecasting methodologies and threat integration techniques.

(2) The project team needs to keep in close touch with the DIA, HQ USAF/IN, AFISA/INA, the Product Center DI, and the user. This enables them to be kept up-to-date on changes in the threat environment and obtain guidance and recommendations on any new intelligence issues that may apply to their projects.

(3) Points of contact are DIA/DTI-AC, Area Code 202-373-8312; HQ USAF AFISA/INAA, DSN 225-7577; ASC DI, ASC/NAIC/TIA, DSN 785-4285.

f. **TRAPS:** Failure of the project team to evaluate documentation such as the TEDs regularly will result in threat information that is neither current nor accurate. This will impact the validity of the MNS.

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1. **ELEMENT:** A4, TBS 0.1.9.8.3 (IFC 93-3)

2. **ELEMENT TITLE:** Update POM/BES

3. **ELEMENT OWNER:** Secretary of Defense

4. **ELEMENT STAKEHOLDER(S):** Comptroller, OSD, CINCs, Joint Staff, OSD Staff, OMB Staff, Defense Planning and Resources Board, HQ USAF, Project Manager, ASC/FM, Operating Command, and the AF PEO.

5. **REQUIREMENT:** DoD Directive 7045.14, The Planning, Programming, and Budget System (PPBS), 22 May 1984. Describes OSD budget process.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this Program Objective Memorandum (POM)/Budget Estimate Submission (BES) exercise is to update (or create) the approved DoD financial planning documentation. For a specific project, this represents the primary opportunity to obtain approval for the projected funding requirements.

b. Objective: The objective is for all levels of review (Services, OSD, and Executive) to develop a comprehensive and integrated plan which supports the Defense Planning Guidance (A1). At the project level, it should be the objective of the project office to get the program financial requirements approved at the earliest opportunity to prevent schedule delays due to funding availability.

7. **DESCRIPTION:**

a. The development of the OSD POM is the process by which OSD reviews the resource requirements identified in the service POMs, and generates its own position as to the Services' resources necessary to support the Defense Planning Guidance (DPG). The resulting OSD POM is used to update the planning for the 6 years contained in the Future Year Defense Program (FYDP). After OSD adjustments are made to the POM, the Services are allowed to update and reprice the planning and the projects which were approved. This is documented in the BES, which converts the project oriented format of the POM into the appropriation categories and is a primary input to the President's budget submission to Congress.

b. The FYDP is the official DoD database and document which is a compilation of the total resources (forces, manpower, and dollars) programmed for DoD, arranged by Major Force Program (MFP) and appropriation. The FYDP projects 6 years for all data except forces, which extend an additional 3 years. The POM is the primary process for updating this approved planning document. For an individual project, the POM represents an opportunity to get the projected resource requirements (D77) approved.

c. OSD provides national security policy, as documented in the draft DPG (A1), to the Services to start the POM development process around August in the odd-numbered years . The final DPG should arrive in the November/December time frame. The DPG provides Secretary of Defense (SECDEF) fiscally-constrained guidance on policy, strategy, force planning, and resource planning. During this same timeframe, OSD provides the POM documentation requirements, the POM Preparation Instructions (PPI) to the Services, and based on this direction, the Services provide their POM proposals to OSD (B5) on 1 April of even numbered years.

d. After receipt of the Service POM submissions, the Chairman of the Joint Chiefs of Staff (CJCS) provides an assessment of the POMs to assist the SECDEF's decisions on the defense planning. This is documented in the Chairman's Program Assessment (CPA), which provides an assessment of the balance, adequacy, capabilities, and risks of the Service POMs, and recommends actions to improve

overall defense capability within OSD fiscal guidance. In addition, after the POMs are received, OSD, JCS, and the CINCs convene Program Reviews to determine Service compliance to DPG and to develop more cost-effective alternatives to the Services' proposals. The project alternatives are described and analyzed in Issue Papers which are provided for action to the Defense Planning and Resources Board (DPRB), which serves as the SECDEF's corporate review body. The DPRB members are the Service Secretaries and other senior officials and is chaired by the DEPSECDEF. Any issues that are approved by the SECDEF are recorded in Program Decision Memorandums (PDMs) and the PDMs are used to update the Service's databases and POM documentation.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The POM activities in OSD start with the receipt of the Service POM submissions, at the first of April of the even-numbered years. The OSD BES activities start in mid-September of the even-numbered years, upon receipt of the Service BES submissions.

b. Exit: The OSD activity is completed with the signing of the Program Decision Memorandums (PDMs) by the Secretary of Defense in July/August of even years. The BES activity is completed when the signed Program Budget Decisions (PBDs)/Defense Management Review Decisions (DMRDs) are incorporated into the Defense Budget which is then delivered to OMB.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The necessary information is contained in the Defense Planning Guidance (A1), the FYDP, the POM Planning Instructions, the Service POM submissions (D77, C9, B5), the Chairman's Program Assessment and the Issue Papers from the Program Reviews.

b. Outputs: The output is the Program Decision Memorandums (A9).

10. KEY REFERENCES:

DoDI 7045.7, Implementation of the Planning, Programming, and Budgeting System (PPBS), 23 May 84. Describes procedures for OSD budget process.

AFP 172-4, The Air Force Budget Process, October 1987. Describes the Air Force budget process.

11. IMPLEMENTATION TOOLS: "The PPBS Primer," 7th Edition, Jan 93. This document, while still "draft," is published by the Directorate of Programs and Evaluation, Department of the Air Force, and provides a valuable description of the Air Force and OSD budget processes. This is one of the few documents that describes the current process, and it does so in detail. Further, it defines the activity schedule for the development of the FY96 POM. However, there is not a great deal of information on POM preparation and actions taken at the field level.

12. PLANNING GUIDANCE:

a. DURATION: The OSD POM activity begins after receipt of the Service POM inputs in April, and continues through August, with the publication of the PDMs. The BES activities occur from August through mid-September, when the approved documentation is delivered to OSD.

b. CONSTRAINTS: The primary constraints to this activity are the resource limitations placed on OSD, the program information required from the Services to support decision making, and the schedule limitations inherent in the budget timetable. A second constraint is limited data (being pre-Milestone 0) from which to submit an input that could cover the next 8 years. Yet, if an input is not made, there may not be adequate funding in the future if a project does proceed.

c. RESOURCES: The POM deliberations within OSD require intensive activity by the Services to answer questions and to work issues. The Program Element Monitor (PEM) should be a key player in working program issues, but all participants in the Air Force POM preparation may be involved. The Project Director may be requested to develop program alternatives to support the deliberations or provide other program data. The BES generation is also an extensive exercise, but is more limited, since it is primarily a financial repackaging and adjustments to the approved POM position. It is not uncommon for project office personnel to testify before the OSD analysts in the BES reviews. This testimony can become critical in the PBD analysis.

d. LESSONS LEARNED: During the OSD POM deliberations and reviews, it is important that the project manager keep in close contact with the PEM. This is important to help resolve issues that may arise, and to ensure that he/she fully understands all the pertinent aspects of the project, and can defend the projected resource requirements. Moreover, the Project Office must ensure that the PEM is provided all program documentation needed to support the program. The need for consistency in the data provided cannot be over-emphasized.

e. BEST PRACTICES: After submission of the POM package, the project office should posture itself to respond effectively to programmatic questions, and to generate quantitative answers to the PEMs requests to develop and price out program variations to the POM submission. The capability to generate this "what-if" information in a timely (and quality) manner is important, since the PEM may be required to make modifications to the Air Force POM requests in terms of funding levels, quantities, schedules, or other programmatic aspects. If a project office is unable to provide the necessary information, or not in time to support the decision makers, the project may not be supported, or approved with insufficient funding levels. It is not unusual for program office personnel to try to get invited to the OSD reviews.

f. TRAPS: If this is the first POM submission for the project, the submission should be considered a "New Start," and identified as such. There may be additional documentation requirements and a higher level of review for these projects, since there is no existing funding line. Due to this, the project office must be especially prepared to defend project requirements and perform programmatic excursions. As more participation occurs in the review process, the need for consistency in the information provided is essential in order to limit confusion and obtain project support.

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1. **ELEMENT:** A5, TBS 0.2.2.2 (IFC 93-3)

2. **ELEMENT TITLE:** Validate MNS Threat (DIA)

3. **ELEMENT OWNER(S):** Defense Intelligence Agency (DIA)

4. **ELEMENT STAKEHOLDER(S):** HQ USAF/IN, HQ AFIC, HQ AFISA/IN, HQ USAF/ICO, NAIC/TIA, HQ USAF/XOR, SAF/AQ, Operating Command, and Implementing Command

5. **REQUIREMENT:**

a. DOD Directive 5000.1, Defense Acquisition, 23 Feb 91, Part 1. This regulation defines the purpose of threat assessments.

b. DOD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91,
Part 4. This regulation contains policies and procedures for the production, review, and validation of intelligence support information.

c. DIA Regulation 55-3, Intelligence Support for Defense Acquisition Programs, 30 Mar 92, Paragraphs 7 thru 10. This regulation defines the roles and responsibilities of the DIA and DoD Components in the production, review, and validation of threat information in support of defense acquisition programs.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: To ensure the threat used to support the Mission Need Statement (MNS) is valid.

b. Objectives: To validate the threat to be countered as described in the MNS and prepare the intelligence report in support of the Defense Acquisition Board (DAB) Milestone 0 decision review.

7. **DESCRIPTION:**

a. The DIA is required to validate threat documentation, threat data bases, and threat assessment procedures used in analyses leading to milestone decisions and system development. To initiate validation of DAB threat documentation, HQ USAF/IN forwards threat documents to DIA (B6) under a covering memorandum indicating their approval. Threats prepared in support of joint programs must have other Component coordination prior to submission to DIA. Other DAB documentation with threat content is forwarded by cognizant DoD offices. DIA review and validation are based upon the intended use of the document to support the system acquisition. The DIA review stresses appropriateness of the judgments, consistency with existing intelligence positions, and logic of extrapolations from existing intelligence. Upon receipt and incorporation of DIA comments, HQ USAF/IN forwards a letter to DIA certifying that the changes have been made or provides a written reclama with justification. Documents reviewed and validated have the following statement in the preface: "The Defense Intelligence Agency has validated this document for use in analysis supporting (Project name) Milestone 0 decisions and development activities taking place during Phase 0." Where documents are validated but do not support a specific program, the following statement will be used: "The Defense Intelligence Agency has validated this document for use in support of the systems acquisition process." Notification of nonvalidation will be provided to HQ USAF/IN as soon as possible.

b. Early in the acquisition process, the user lead project team is technically responsibile for all aspects of the program. However, the project team does not turn DIA on to start the ball rolling. The preparation, review, validation, etc., of threat issue papers and intelligence reports as part of the milestone decision package is automatic. This is an independent timing function and sole responsibility

of DIA. The DIA is a permanent member of three standing DAB committees which are Strategic Systems, Conventional Weapons, and Command, Control, and Communications. As committee members they know when their documentation needs to be accomplished. If anything serves as a catalyst in the pre-milestone 0 phase, it is receipt of the MNS for threat validation. This should not relieve the project team of the responsiblity of working closely with the intelligence community in ensuring that threat issues are addressed in a timely manner and that the milestone documentation package is complete.

c. A written Intelligence Report is provided by the DIA to the Milestone Decision Authority (MDA) prior to each milestone decision review. For Milestone 0, Concept Studies Approval, the intelligence report will confirm the validity of the data base documents used to define the threat to be countered and projected threat environment for the MNS. The report is prepared by the DIA and contains DIA independent judgments and comments in an executive summary of the threat. It is written by one DIA staff officer; it takes approximately 2 weeks to write and 1 week to review and coordinate. This report is submitted to the appropriate DAB Acquisition Committee Chair with copies to the DAB Executive Secretary, the JROC (A6 and A8), the DoD Component Acquisition Executive (CAE) (B9), the Program Executive Officer (PEO), the Project Manager, and the DoD Component Intelligence Organization. This report is due no later than 10 working days prior to the DAB Acquisition Committee meeting.

8. **ENTRANCE/EXIT CRITERIA:**

a. Entrance: This element starts when HQ USAF/IN approves the threat content contained in the MNS.

b. Exit: This element ends when DIA has validated the threat content in the MNS.

9. **KEY INPUTS AND OUTPUTS:**

a. Inputs: The key input is the MNS (C12).

b. Outputs: The key outputs are the validation of the threat content in the MNS, and completion of the DIA Intelligence Report.

10. **KEY REFERENCES:**

a. AF Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures,
16 Feb 93, Paragraph 1.1.7.

b. AFSCR 200-3, Threat Assessment Documentation, 5 Apr 85, Atch 1.

11. **IMPLEMENTATION TOOLS:** The threat and intelligence databases consist of validated System Threat Assessment Reports (STARs), Threat Assessment Reports (TARs), Threat Planning Documents (TPDs), Threat Environment Descriptions (TEDs), approved Science and Technology (S &T) intelligence reports, regulations, standard operating procedures, and other intelligence data, such as translations of foreign reports or books.

12. **PLANNING GUIDANCE:**

a. **DURATION:** When possible, project teams should prepare threat documents, i.e., MNS threat, in time to allow the DIA at least 2 weeks for review and coordination. They should be validated by DIA and published 2 to 3 weeks before the DAB or Air Force Systems Acquisition Review Council (AFSARC).

b. **CONSTRAINTS:** A key limitation is the availability of current threat models and scenarios that can be used as threat evaluation tools.

c. **RESOURCES:**

(1) DIA/DTI-AC is presently organized into three groups which reflect their membership of three standing committees for the DAB. They are grouped into Strategic Systems, Conventional Systems, and Command, Control, and Communications. The entire organization has 26 individuals including analysts and administrative support. Eight acquisition staff officers are designated to a number of acquisition programs. For Example, one staff officer/analyst may serve on the Command, Control, and Communications group for all services minus satellites, while another analyst might work Strategic Systems, i. e., the B-2, the M-X Missile, and the Strategic Defense Initiative. The third group, Conventional Weapons, is subdivided into the three services, and one person works all Air Force programs.

(2) At least one action officer should be assigned by the project manager to track the progress of the DIA validation process and provide additional information as requested.

d. **LESSONS LEARNED:** Failure to review and update threat assessment products at key project points can allow development of ineffective or unneeded weapon systems or may prevent a project from going forward.

e. **BEST PRACTICES:**

(1) The project team needs to establish and maintain close cooperation among DIA, USAF/IN, AFISA/INA, the Product Center Director of Intelligence (DI) (ASC/NAIC/TIA for ASC), and other intelligence activities to ensure the timely availability of validated threat information.

(2) Project team contributors to threat documentation need to review the draft intelligence report to ensure accurate use of their data. NAIC will review draft assessments for completeness, consistency, currency and accuracy. To speed up the validation process, HQ AFMC/IN and NAIC should review the draft simultaneously. When feasible, HQ AFMC/IN will give the Director of Intelligence (DI) Comments from each review level via secure phone to minimize such delays.

(3) Points of contact for additional information are HQ USAF/XORJ, DSN 225-7107; ASC/NAIC/TIA, DSN 785-4285; HQ AFISA/INAA, DSN 225-7577; DIA/DTI-AC, (202) 373-8312.

f. **TRAPS:**

(1) Failure of the project team to evaluate threat documentation regularly may result in threat document information that is neither current nor accurate which may result in the MNS not being validated.

(2) Failure to get DIA validation of a threat may cause delay in MS 0.

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1. ELEMENT: A6, TBS 0.2.2.4 (IFC 93-3)

2. ELEMENT TITLE: Staff and Coordinate MNS (JROC)

3. ELEMENT OWNER: Joint Requirements Oversight Council (JROC)

4. ELEMENT STAKEHOLDER(S): JROC, AF/XOR, Operating Command, AFMC, and Participating Commands.

5. REQUIREMENT: CJCS Memorandum of Policy (MOP) No. 77, 17 Sep 92, Requirements Generation System Policies and Procedures, describes how the JROC implements their oversight responsibility for the requirements generation system.

6. PURPOSE/OBJECTIVES:

a. Purpose: Staff and coordinate the Mission Need Statement (MNS) through the JROC secretariat in preparation for the JROC review.

b. Objective: Obtain a Service, CINC and joint staff coordinated MNS that the JROC can send to the Defense Acquisition Board (DAB) Milestone Decision Authority (MDA).

7. DESCRIPTION: The overall MNS staffing and coordination process begins at the operating command where the MNS is drafted (C12 and C13), continues with Air Staff coordination (B7), JROC Service, CINC, and Joint Staff coordination (ACAT I) (A6), and ends with either CSAF approval (ACAT II-IV) or validation by the JROC (ACAT I) (A8). The JROC will use the latest DIA threat information to ensure the threat used to develop the MNS is valid (A5). The JROC also will review ACAT I MNS for assignment of joint potential designator (i.e., potential for joint applicability). For ACAT II-IV MNS, validation and approval are done by the Air Force with the Operating Command as the validation authority and the Chief of Staff of the Air Force (CSAF) as the approval authority (JROC assistance may be requested to resolve lead Service issues). This data sheet addresses the JROC portion of the MNS staffing and coordination process.

Validation confirms that a mission need exists and cannot be satisfied by a nonmateriel solution. Approval is the formal sanction that the validation process is complete and the need is valid. Approval also indicates that the need warrants concept exploration studies for a possible new acquisition program. After approval, the MNS is forwarded to the MDA for action.

During the AFI 10-601 draft "for comment" and final "coordination" phases, ACAT I MNS are distributed by AF/XOR to the JROC Secretariat for colonel ("for comment") level and two-star ("coordination") level Service, CINC, and Joint Staff review. After incorporation of comments, AF/XOR submits the MNS to CSAF for approval. CSAF then forwards a memorandum to the JROC requesting validation of the MNS. The Air Force (normally the Operating Command with AF/XOR and JROC staff assistance) prepares the JROC briefing, briefs the JROC Secretariat 2 weeks prior to the JROC Review, and briefs the JROC (A8) 30 days prior to the Defense Acquisition Board (DAB). The JROC process concludes with a memo to the Under Secretary of Defense for Acquisition (USDA) indicating approval or disapproval of the MNS.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: When the draft "for comment" ACAT I MNS is distributed by AF/XOR to the JROC Secretariat for Service, CINC, and Joint Staff coordination.

b. Exit: When the ACAT I MNS is staffed and coordinated by the JROC Secretariat.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The "for comment" ACAT I MNS from the Air Staff (B7). A DIA Intelligence report to ensure the threat used to develop the MNS will remain valid through the milestone decision (A5).

b. Outputs: A Service, CINC, and Joint Staff coordinated MNS that is ready for JROC Review (A8). A briefing that has been reviewed by the JROC Secretariat and is ready for the JROC Review (A8).

10. KEY REFERENCES:

a. AFPD 10-6, Mission Needs and Operational Requirements, 19 Jan 93, Attachment 3, identifies MNS approval requirements.

b. AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, Attachment 4, identifies MNS staffing and coordination procedures.

c. CJCS MOP-77 (see Requirement, paragraph 5)

d. JROC Administrative Instruction, JROCM-050-92, 6 Jul 92, identifies JROC procedures to be used to staff the MNS.

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: JROC staffing and coordination are concurrent with the AFI 10-601 draft "for comment" and final "coordination" phases. The JROC is briefed after the CSAF has approved the MNS and has forwarded it to the JROC for validation.

45 days (colonel level "for comment")
15 days (Operating Command work comments)
15 days (2 star level "coordination")
15 days (Operating Command work comments)
15 days prior to JROC (prief JROC Secretary and resolve issues)

Note: These timelines are optimistic. Time for working comments and obtaining coordination can take several months, depending on issues or other priorities.

b. CONSTRAINTS: None identified.

c. RESOURCES: An OPR will be required from the JROC staff to conduct the staffing and coordination process.

d. LESSONS LEARNED: This activity is handled by the AF/XOR OPR (who serves as the Air Force JROC Secretariat) and the JROC OPR. The Operating Command is standing by for comments. Product Center involvement normally would have occurred prior to staffing and coordination, hopefully in support of the mission need analysis and development of the MNS. If major issues arise during this activity, however, AF/XOR and the operating command OPR should notify other participants (i.e., Product Center) and plan for resolution as a team.

e. BEST PRACTICES: The Product Center OPR should stand by and be prepared to help the Operating Command OPR work comments. The JROC may be interested in the planning for Concept Exploration and Definition (CE&D). The Product Center should be ready to provide this plan. Potential

DAB issues should be discussed. Also, work with the operating command OPR to ensure potential joint needs are thoroughly explored and explained.

f. **TRAPS:** For the operating MAJCOM OPR, not working with the Air Force JROC Secretariat (in AF/XOR) ahead of time for tips in writing the MNS and briefing the JROC. Lay the groundwork for a smooth coordination process before you write the MNS.

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1. **ELEMENT:** A7, TBS 1.1.1.5.3 (IFC 93-3)

2. **ELEMENT TITLE:** Update POM/BES

3. **ELEMENT OWNER:** Secretary of Defense

4. **ELEMENT STAKEHOLDER(S):** Comptroller, Office of the Secretary of Defense (OSD), CINCs, Joint Staff, OSD Staff, OMB Staff, Defense Planning and Resources Board, HQ USAF, Project Manager, ASC/FM, Operating Command, and PEO.

5. **REQUIREMENT:** DoD Directive 7045.14, The Planning, Programming, and Budget System (PPBS), 22 May 1984. Describes OSD budget process.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: To ensure that all funding is available to support execution of the planned project. Initial Program Objective Memorandum (POM) wedges should be submitted or updated at the earliest opportunity.

b. Objectives: To prevent possible schedule delays later due to inadequate funding.

7. **DESCRIPTION:**

a. The development of the OSD POM is the process by which OSD reviews the resource requirements identified in the Service POMs, and generates its own position as to the Services' resources necessary to support the Defense Planning Guidance (DPG). The resulting OSD POM is used to update the planning for the 6 years contained in the Future Year Defense Program (FYDP). After OSD adjustments are made to the POM, the Services are allowed to update and reprice the planning and the projects which were approved. This is documented in the Budget Estimate Submission (BES), which converts the project oriented format of the POM into the appropriation categories and is a primary input to the President's budget submission to Congress.

b. The FYDP is the official DoD database and document which is a compilation of the total resources (forces, manpower, and dollars) programmed for DoD, arranged by Major Force Program (MFP) and appropriation. The FYDP projects 6 years for all data except forces, which extend an additional 3 years. The POM is the primary process for updating this approved planning document. For an individual project, the POM represents an opportunity to get the projected resource requirements (D20A) approved.

c. OSD provides national security policy, as documented in the draft DPG (A1), to the Services to start the POM development process around August in the odd-numbered years . The final DPG should arrive in the November/December time frame. The DPG provides the Secretary of Defense's (SECDEF) fiscally-constrained guidance on policy, strategy, force planning, and resource planning. During this same time frame, OSD provides the POM documentation requirements, the POM Preparation Instructions (PPI) to the Services, and based on this direction, the Services provide their POM proposals to OSD (B8) on 1 April of even numbered years.

d. After receipt of the Services POM submissions, the Chairman of the Joint Chiefs of Staff (CJCS) provides an assessment of the POMs to assist the SECDEF decisions on the defense planning. This is documented in the Chairman's Program Assessment (CPA), which provides an assessment of the balance, adequacy, capabilities, and risks of the Service POMs, and recommends actions to improve overall defense capability within OSD fiscal guidance. In addition, after the POMs are received, OSD, JCS, and the CINCs convene Program Reviews to determine Service compliance to DPG and to develop more cost-effective alternatives to the Services' proposals. The project alternatives are described and analyzed in Issue Papers which are provided for action to the Defense Planning and

Resources Board (DPRB), which serves as the SECDEF's corporate review body. The DPRB is chaired by the Deputy SECDEFand its members are the Service Secretaries and other senior Service officials. Any issues that are approved by the SECDEF are recorded in Program Decision Memorandums (PDMs) and the PDMs are used to update the Services' databases and POM documentation.

e. While OSD is holding the Program Reviews, the Air Force conducts a Summer Review, which consists of an evaluation of the pricing and execution of the Air Force investment accounts (research and development, procurement, and military construction). Program and financial information from this review, plus any PDMs issued by OSD, and any necessary repricing of elements in the databases, are used to develop the Air Force BES, which is submitted to OSD. After OSD receipt of the Services' BES packages, a joint Assistant Secretary of Defense (Comptroller)/ Office of Management and Budget (OMB) review is conducted to ensure the projects and dollars are correctly matched. The final decisions are documented in Program Budget Decisions (PBDs) and Defense Management Report Decisions (DMRDs). The Services are allowed a final opportunity to take exception to the PBDs/DMRDs in the Major Budget Issues cycle, and then the DEPSECDEF signs the final PBDs/DMRDs. This process should be complete in December, with the submission of the Defense Budget to OMB.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The POM activities in OSD start with the receipt of the Services' POM submissions, at the first of April of the even-numbered years. The project team should take advantage of any opportunity to input or update the funding wedge of potential acquisition projects.

b. Exit: The OSD activity is completed with the signing of the PDMs by the Secretary of Defense in July/August of even years.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The necessary information is contained in the Defense Planning Guidance (A1), the FYDP, the POM Planning Instructions, the Services' POM submissions (B8, C15, C14, D20A), the Chairman's Program Assessment and the Issue Papers from the Program Reviews.

b. Outputs: The output is the Program Decision Memorandums (A9).

10. KEY REFERENCES:

DoDI 7045.7, Implementation of the Planning, Programming, and Budgeting System (PPBS), 23 May 84. Describes procedures for OSD budget process.

AFP 172-4, The Air Force Budget Process, Oct 87.

11. IMPLEMENTATION TOOLS: "The PPBS Primer," 7th Edition, January 1993. This document, while still "draft," is published by the Directorate of Programs and Evaluation, Department of the Air Force, and provides a valuable description of the Air Force and OSD budget processes. This is one of the few documents that describes the current process, and it does so in detail. Further, it defines the activity schedule for the development of the FY96 POM. However, there is not a great deal of information on the POM preparation and the actions taken at the field level.

12. PLANNING GUIDANCE:

a. DURATION: The OSD POM activity begins after receipt of the Services' POM inputs in April, and continues through August, with the publication of the PDMs.

b. CONSTRAINTS: The primary constraints to this activity are the resource limitations placed on OSD, the program information required from the Services to support decision making, and the schedule limitations inherent in the budget timetable. A second constraint is limited data (being pre-Milestone 0) from which to submit an input that could cover the next 8 years. Yet, if an input is not made, there may not be adequate funding in the future if a project does proceed.

c. RESOURCES: The POM deliberations within OSD require intensive activity by the Services to answer questions and to work issues. The Program Element Monitor (PEM) should be a key player in working program issues, but all participants in the Air Force POM preparation may be involved. The Project Director may be requested to develop program alternatives to support the deliberations or provide other program data.

d. LESSONS LEARNED: During the OSD POM deliberations and reviews, it is important that the project manager keep in close contact with the PEM. This is important to help resolve issues that may arise, and to ensure that he/she fully understands all the pertinent aspects of the project, and can defend the projected resource requirements. Moreover, the Project Office must ensure that the PEM is provided all program documentation needed to support the program. The need for consistency in the data provided cannot be over-emphasized.

e. BEST PRACTICES: After submission of the POM package, the project office should posture itself to be able to respond effectively to programmatic questions, and to be able to generate quantitative answers to the PEMs requests to develop and price out program variations to the POM submission. The capability to generate this "what-if" information in a timely (and quality) manner is important, since the PEM may be required to make modifications to the Air Force POM requests in terms of funding levels, quantities, schedules, or other programmatic aspects. If a project office is unable to provide the necessary information, or not in time to support the decision makers, the project may not be supported, or approved with insufficient funding levels. It is not unusual for program office personnel to try to get invited to the OSD reviews.

f. TRAPS: If this is the first POM submission for the project, the submission should be considered a "New Start," and identified as such. There may be additional documentation requirements and a higher level of review for these projects, since there is no existing funding line. Due to this, the project office must be especially prepared to defend project requirements and perform programmatic excursions. As more participation occurs in the review process, the need for consistency in the information provided is essential in order to limit confusion and obtain project support.

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1. **ELEMENT:** A8, TBS 0.2.2.6 (IFC 93-3).

2. **ELEMENT TITLE:** Conduct Joint Requirements Oversight Council (JROC) Review

3. **ELEMENT OWNER(S):** Chairman of the JROC.

4. **ELEMENT STAKEHOLDER(S):** Chairman of the Joint Chiefs of Staff; Vice Chairman of the Joint Chiefs of Staff; Vice Chief of Staff, United States Army; Vice Chief of Naval Operations; Vice Chief of Staff, United States Air Force; and Assistant Commandant, and United States Marine Corps.

5. **REQUIREMENT**: DoD Directive 5000.1, "Defense Acquisition," 23 Feb 91. Part 2, The Mission Need Statement for major defense acquisition programs will be forwarded through established review channels to the JROC. Part 2B entitled "Requirements Generation System" identifies who chairs the JROC and what are the Council's functions.

6. **PURPOSE/OBJECTIVES**:

a. Purpose: To review ACAT I's Mission Need Statement (MNS) and confirm that each identified mission need cannot be satisfied by a nonmateriel solution (e.g., a change in doctrine, operational concepts, tactics, training, or organization). The JROC also determines the validity of the identified mission need and forwards results (either approved or disapproved) to the Under Secretary of Defense for Acquisition (USD(A)) as support for the Defense Acquisition Board (DAB) Milestone 0 review. Approved statements will be assigned a joint priority.

b. Objectives:

(1) Review of any deficiencies that may necessitate new major defense acquisition programs.

(2) Ensure that nonmateriel alternatives to satisfying the need have been considered.

(3) The JROC assists the Chairman of the Joint Chiefs of Staff in ensuring that all potential materiel alternatives to acquisition programs have been considered.

7. **DESCRIPTION:** At this point in the project the Mission Need Statement (MNS) has been staffed and coordinated by the JROC Secretary at the O-6 and 2-star level. The JROC Secretary has previewed the Air Force JROC briefing and has accomplished service and joint coordination of the MNS (A6). Subsequent to the JROC Review, the validated MNS is forwarded to the USD(A) for the Air Force Systems Acquisition Review Council (AFSARC) (B9) and DAB (A9). A successful DAB will result in an Acquisition Decision Memorandum (ADM) which, when issued, is the approval document required to proceed into Phase 0.

a. The JROC is responsible to the Chairman of the Joint Chiefs of Staff (CJCS) for performing the functions set forth below. The Chairman of the JROC (Vice Chairman of the Joint Chiefs of Staff (VCJCS)) is the principal military advisor to the CJCS with respect to military requirements. The Chairman of the JROC is the final decision authority for all matters brought before the Council.

b. The JROC:

(1) Assigns a JROC Secretary (Director of Operational Plans and Interoperability (J-7) Joint Staff) to manage the MNS documentation (see Staff and Coordinate MNS (JROC))(A6).

(a) The JROC Secretary will review and coordinate all MNSs that might result in the initiation of new major defense acquisition programs (Acquisition /Category I).

(b) The JROC Secretary delegates harmonization for joint potential of non ACAT ID MNSs to the sponsoring Service.

(2) Secretariat includes the JROC Recorder and other Joint Staff personnel as designated by the Secretary. The Secretary assigns specific functions and duties in support of the JROC Chairman. JROC Secretariat's recommended processing procedures and time lines for staffing a MNS are described in A6.

(a) The JROC reviews any deficiencies that may necessitate new major defense acquisition programs.

(b) The JROC reviews the identified mission need (as distinct from any potential system or program), validates that a nonmateriel solution is not feasible, assigns a joint priority for meeting these needs and forwards the MNS, with amplifying recommendations to the USD(A) for a Milestone 0 decision.

c. The JROC oversees the requirements generation process and ensures that emerging performance objectives and thresholds adequately address the mission need at subsequent milestones.

d. The AFMC/Project Manager shall only attend the JROC review(s) if the AFMC/Project Manager's attendance is requested by the Chairman and is approved by the Service Acquisition Executive.

8. **ENTRANCE/EXIT CRITERIA:**

a. Entrance: Can enter when you have a Service and Joint Staff coordinated Chief of Staff of Air Force (CSAF) approved MNS and Air Force JROC briefing (A6). The data that will result from this block are a record of the MNS staffing and coordination that has occurred and the Air Force's JROC briefing. The briefing must be briefed to the JROC Secretary 2 weeks prior to the JROC Review and 30 days prior to the DAB.

b. Exit: Can exit when the JROC Chairman forwards the approved MNS to the DAB for a Milestone 0 decision.

9. **KEY INPUTS AND OUTPUTS:**

a. Inputs:

(1) Service and Joint Staff coordinated MNS (A6).

(2) Air Force briefing for JROC Review and DAB (A6).

b. Outputs:

(1) A JROC validated MNS.

(2) Memorandum to the Under Secretary of Defense for Acquisition (USD(A)) stating approval and recommendations or to the MNS sponsor if disapproved, along with rationale.

10. **KEY REFERENCES:**

a. DoD Directive 5000.1, 23 Febr 91, "Defense Acquisition," Part 2. This regulation identifies the Chairman of the DAB and identifies, for Milestone 0, the initial interface between the requirements generation and the acquisition management systems.

b. DoD Instruction 5000.2, 23 Feb 91, "Defense Acquisition Management Policy and Procedures," Part 13, Sections A and D. Section A of this directive contains the time frame required by the JROC to hold a review, with representatives of the DoD Component, prior to the DAB. It also includes the purpose and product of the review. Section D identifies JROC policies and procedures.

c. DoD Manual 5000.2-M, 23 February 1991, "Defense Acquisition Management Documentation and Reports," Part 2. This manual provides the purpose and procedures for the MNS.

d. Chairman of the Joint Chiefs of Staff Memorandum of Policy (MOP) No. 77, 17 Sep 92, "Requirements Generation System Policies and Procedures." This document assigns the oversight responsibility for the requirements generation system to the VCJCS. The VCJCS is assisted by the JROC and members of the Joint Staff. It defines the role of the JROC Secretary.

11. **IMPLEMENTATION TOOLS:**

Briefing guide and assessment items support the JROC assessment. Administrative Instruction JROCM-050-92, 6 July 1992 (with revised Briefing Guide, JROCM 030-93, 30 Apr 93), "Joint Requirements Oversight Council." This instruction may be used to clarify JROC procedures that are used to process requirements staffing of the MNS in accordance with DoDD 5000.I, DoDI 5000.2 and DoDM 5000.2-M.

12. **PLANNING GUIDANCE:**

a. **DURATION:**

(1) ACAT I - Approximately 90 to 120 days (Note: This includes staffing from A-6). (See CJCS MOP 77, 17 September 1992, Appendix C for sequencing.)

(2) ACAT II-IV - Since CINC may develop, validate, and approve their own MNS in conjunction with any assistance that they request from their Service Component, it customary for the time to be set by the component. If JROC assistance is requested, it is for the purpose of resolving lead Service issues only. (See CJCS MOP 77, 17 Sep 92, Appendix C for sequencing.)

b. **CONSTRAINTS**: None Identified.

c. **RESOURCES**: None Identified.

d. **LESSONS LEARNED:**

(1) MNS must avoid advocating a specific system solution. The DoD 5000 acquisition policy prohibits a solution in the MNS. The JROC Chairman completely supports that position and has turned back MNS for being too solution specific. (Examples: Carrier Battle Group Airborne Early Warning Capability - JROC directed a rewrite to take out the emphasis on "organic AEW/carrier-based," and Strategic Sealift -- even though the MNS is for a ship (sealift) it required numerous revisions to eliminate specific ship type/design.)

(2) The main purpose of the JROC Briefing Guide (JROCM-030-93), 30 April 1993, is to incorporate lessons learned. Things such as dividing capabilities into eight major groups and developing

a briefing structure with set subjects to be addressed in the briefing were a direct result of what has been learned from earlier presentations. The Briefing Guide structure was designed to answer the recurring questions and comments of the JROC Chairman and Principals.

e. **BEST PRACTICES:**

(1) Contact the Air Force JROC Secretariat in AF/XORJ for assistance.

(2) Plan enough lead time for the coordination process to be completed. Until the MNS has been validated, funding is not available and cannot be requested.

(3) Follow the DoD 5000 series acquisition policies. The Office of Secretary of Defense (OSD) Staff and Joint Staff base their reviews on DoD 5000 series acquisition policy and procedures, CJCS MOP 77 and Administrative Instruction JROCM-050-92.

(4) Keep the briefing material clear and concise.

(5) Try to identify Joint needs or focus on Joint potential.

f. **TRAPS:**

(1) Advocating a specific system.

(2) Trying to play catch up on a program that is funded and moving forward to design and testing, but did not go through the requirements validation process.

1. ELEMENT: A9, TBS 0.2.2.7/0.2.3.1 (IFC 93-3)

2. ELEMENT TITLE: Conduct DAB Milestone 0 Review

3. ELEMENT OWNER(S): OSD/USD(A)

4. ELEMENT STAKEHOLDER(S):
Milestone Review Board, i.e., Defense Acquisition Board (DAB) or Air Force Systems Acquisition Review Committee (AFSARC), Milestone Decision Authority (MDA), Joint Requirements Oversight Committee (JROC) Chariman, Program Executive Officer (PEO), Defense Acquisition Commander (DAC) and Operating Command.

OSD: Dir, API; DepDir, ASM;D,TS, DDR&E;D,S&SS, ASD(C3I); DASD(C3); DAB, CSC; SSC; C3IC

DoD COMPONENTS:
Dept of Army: ASA(RDA); SARD-ZBA
Dept of Navy ASN(RDA); Dir, RE
Dept of Air Force: SAF/AQ; SAF/AQX

CJCS (Joint Staff): DJ8, J8/SPED

Defense Intelligence Agency (DIA)

5. REQUIREMENT: DODD 5000.1, Defense Acquisition (23 Feb 91), Part 2, which describes the major characteristics of the Acquisition Management System, and DODI 5000.2, Defense Acquisition Management Policies and Procedures (23 Feb 91) Part 2 which establishes the general policies and procedures for managing major and nonmajor defense acquisition programs, and Part 3, which highlights the key features and characteristics of the acquisition process.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose of the Defense Acquisition Board (DAB) review is to advise the USD(A) concerning a Milestone 0 decision. The actual decision is made by the Milestone Decision Authority (MDA) and is documented in the Acquisition Decision Memorandum (ADM).

b. Objectives: The objectives of Milestone 0 review are to 1) determine if a documented mission need warrants the initiation of study efforts of alternative concepts, and 2) identify the minimum set of alternative concepts to be studied to satisfy the need.

7. DESCRIPTION: Milestone 0 marks the initial formal interface between the requirements generation and the acquisition management systems. The Joint Requirements Oversight Council (JROC) validated Mission Need Statement (MNS) is forwarded to OSD/USD(A)/API/ASM, the office responsible for staffing the MNS (A8). The MNS is also forwarded to the Air Force where it is reviewed by the Air Force Systems Acquisition Review Council (AFSARC) (B9).

OSD/USD(A)/API/ASM (through staffing with the DAB principals and appropriate Committee Chair) determines a funding source and verifies that the need has sufficient interest to continue processing. When funding is available and the intelligence report has been received, the MNS/intelligence report is forwarded to the Committee Chair who recommends to the USD(A): 1) whether or not the effort should be considered a potential major program, 2) whether or not the effort should be considered an Advanced Technology Demonstration (ATD) program, and 3) whether or not a DAB review should be held. There are three separate committees which support the DAB: 1) the Strategic Systems Committee (SSC), 2) the Conventional Systems Committee (CSC), and 3) the Command, Control, Communications, and

Intelligence Systems Committee (C3ISC). The committees are composed of representation from each of the DAB principals and other members as determined by the Committee Chair.

The MNS, intelligence report, funding information, etc., are then compiled into a "read-ahead" package which is distributed to all the Committee Chairs, and a committee meeting is held to make recommendations to the DAB. It is the Committee's responsibility to provide an independent assessment of the study project. The Committee will identify possible materiel alternatives and study efforts for consideration by the DAB and will recommend exit criteria for Phase 0. Results of the committee review are used by the Committee Chairman to complete a report to the USD(A) on the merits of proceeding with the Concept Exploration and Development (CE&D), proposed alternatives for study during Phase 0, and proposed exit criteria for the next acquisition phase. The Committee report and other pertinent information are compiled into a read ahead which is distributed to DAB members in preparation for the DAB. The DAB Executive Secretary sets the Committee Review and DAB Review dates.

The DAB will convene and evaluate the MNS, intelligence report, and Committee report and make recommendations to the USD(A). After the DAB, theUSD(A) decision will then be documented in the Acquisition Decision Memorandum (ADM). The ADM: 1) defines and directs studies of a minimum set of materiel concept alternatives, 2) identifies the lead organization or organizations for the study efforts which involve designating one or more of the Military Departments or Defense agencies to conduct the studies and present the results at the next milestone decision point, 3) identifies the dollar amount and a source of funding for the study efforts to be conducted (the funding may come from reprogramming, budget amendment actions, or study funds controlled by one or more of the DoD Components), and 4) establishes any exit criteria information or analyses that must be presented at Milestone 1. An action officer in OSD/USD(A)/API/ASM prepares the ADM and coordinates it through API and the Committee Chair. It is then forwarded to the DAB members for review. The ADM is signed by the USD(A) after coordination. The current objective is to issue the ADM within 48 hours of the DAB. Upon receipt of the ADM, AF/XOR issues the Program Management Directive (PMD) to initiate Phase 0 (B10).

See Attachment 1 for a summary of the MDA Decision Process.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The activities associated with this data element can start when a JROC validated MNS is available and has been forwarded to the DAB Executive Secretary.

b. Exit: Activity for this effort is complete when the ADM has been approved and distributed.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Validated MNS

(2) DIA Intelligence Report

(3) Other documentation identified by the Milestone Decision Authority or the responsible committee/review boards that support the Milestone Decision Process.

b. Output: ADM

10. KEY REFERENCES:

a. DODD 5000.1, Defense Acquisition (23 Feb 91), Part 2, which describes the major characteristics of the Acquisition Management System.

b. DODI 5000.2, Defense Acquisition Management Policies and Procedures (23 Feb 91), Part 2, which establishes the general policies and procedures for managing major and nonmajor defense acquisition programs, and Part 3, which highlights the key features and characteristics of the acquisition process.

11. IMPLEMENTATION TOOLS: Normal word processing, spreadsheet, and chart software are required for the development of Milestone Decision Documentation. However, the Air Force lessons learned and AFAM repositories are sources of lessons learned and Graybeard wisdom for preparation/processing of documentation.

12. PLANNING GUIDANCE: There will be an accountable person within the office of the DAB Executive Secretariat at the Milestone Review Board to accurately document the decisions of the board so that the ADM can be accurately written . Stay in touch with this person to monitor the results of the DAB and the status of the ADM. Also, becoming familiar with all players in the Committee Review process and all required activities is recommended in order to address concerns and hidden agenda prior to the actual reviews. In addition, discussing lessons learned with one or more CE&D efforts which recently completed this activity would be advantageous. Advance identification of a funding source will result in a more expeditious processing of the milestone documentation.

a. DURATION: The duration from validation of a MNS and AFSARC review (if required) to release of an ADM will vary for each MNS. Availability of funds has a significant impact on the time required to release a documented MDA decision. When funds have been identified (a sponsor is available), the process is short. However, when funds are not available, the MNS may have to be held pending funding availability within the budget cycle. When a mission need is identified as an ATD, Advanced Research Projects Agency (ARPA) funds may be required in which case, the MNS will be held until funds have been identified.

The following is a summary of the time frame required for various activities in this process.

Activity	Time frame
Read-ahead to Committee Members	At least 2 working days prior to Committee Review
Committee Review	At least 14 calendar days prior to DAB Review
Committee Report	Within 5 calendar days after the Committee Review
Preparation of the ADM	Approximately 1 day
DAB principals Review the ADM	24 hours by regulation
USD(A) Signature of ADM	Within 48 hours after DAB Review

Processing time for documentation submittal is unknown. A MNS will be processed based upon its priority and funding availability.

b. CONSTRAINTS:

(1) An ADM cannot be generated unless a clear decision which can be documented is available from the Milestone Decision Authority (whether or not a Review Board is convened).

(2) Availability of funds to start a Phase 0 effort is usually the biggest constraint to the milestone decision.

c. RESOURCES:

(1) The DAB Secretary (Director, USD(A)/API/ASM) documents the results of the milestone review/decision, and prepares, coordinates, and distributes the ADM at milestone review authority level. At least one individual will be needed in AF/XOR to monitor and track actions and documents associated with the DAB activity. Computers (and associated peripherals and software) and telephones are required for this individual.

(2) Action officers will be required within the Air Force (Operating Command/Implementing Command, AF/XOR, and SAF/AQ) to:

-- track the status of documentation submittal,

-- ensure appropriate quantities are provided to the correct agencies to follow-up on issues, and

-- monitor status.

d. LESSONS LEARNED: While the ADM is supposed to be distributed within 48 hours of the DAB review, there have been rare instances where it was a matter of months before distribution occurred. Therefore, if the project is time sensitive, study activities may need to begin prior to release of the ADM and/or PMD. The project team should determine the necessary activities to work on if approval is delayed, focusing on the use of organic resources. The project team must assess the amount of activity that is wise to proceed with until formal approval to proceed has been given.

e. BEST PRACTICES:

(1) To prevent confusion on implementation of the decision of the Milestone Decision Authority, the ADM must be clear and accurate.

(2) Make sure briefings cover issues and are not marketing pitches. It is also absolutely essential to elevate issues as soon as possible.

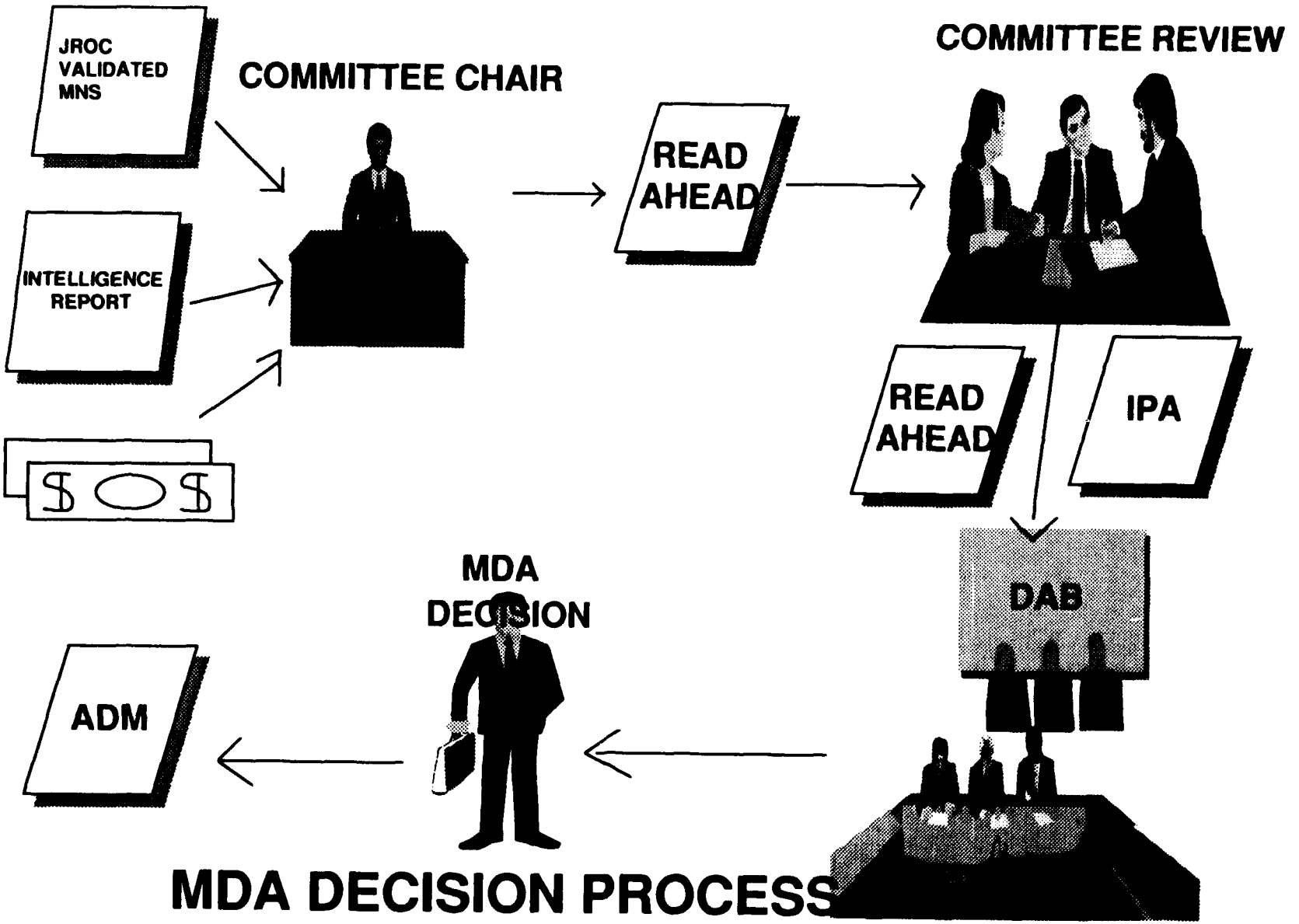
(3) Close coordination with the Air Force Focal Point and the Committee staff specialist is highly recommended to ensure that adequate copies are provided and that documents reach appropriate individuals in time to meet required due dates. Activities should be monitored in order to meet scheduled time frames.

f. TRAPS:

(1) ADM's can be ambiguous or incomplete on critical matters. Therefore, it is critical to understand the DAB's intent when using the ADM for direction.

(2) Documentation processing can be delayed in the POM process if a funding source is not identified.

(3) Try to limit the number of alternatives to be studied in the ADM. Make sure the exit criteria are explicit, measurable, and precise.



MDA DECISION PROCESS

(Attachment 1)

1. **ELEMENT:** A10 (IFC 93-3)

2. **ELEMENT TITLE:** Provide DIA Threat Support

3. **ELEMENT OWNER(S):** Defense Intelligence Agency (DIA)

4. **ELEMENT STAKEHOLDER(S):** HQ USAF/IN, HQ AFIC, HQ AFISA/INA, HQ USAF/ICO, NAIC/TIA, SAF/AQ, Operating Command, and Implementing Command.

5. **REQUIREMENT:**

a. DOD Directive 5000.1, Defense Acquisition, 23 Feb 1991, Part 1. This regulation addresses intelligence threat assessments.

b. DOD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 4. This regulation addresses policies and procedures for production, review, and validation of intelligence information in support of defense acquisition programs.

c. DIA Regulation 55-3, Intelligence Support for Defense Acquisition Programs, 30 Mar 92, paragraphs 7 and 8. This regulation addresses background information and DIA responsibilities.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: Ensure intelligence assessment documents are standardized and relatable to the acquisition process and program baselines.

b. Objectives: Review and validate intelligence threat assessments used by acquisition authorities to ensure that each proposed system developed is effective within its intended threat environment.

7. **DESCRIPTION:**

a. The DIA, as principal advisor to DoD Components for intelligence and threat concerns, is responsible for reviewing and validating some of the DoD component produced threat documents relating to acquisition programs. All Air Staff and MAJCOM organizations should consult DIA through AFISA/INA for the appropriate information when beginning the Phase 0 study effort. Any threat or intelligence data used in the modeling, analysis or Cost and Operational Effectiveness Analysis (COEA) efforts should originate from DIA provided documents.

b. The Concept Action Group (CAG) (if formed) is the Phase 0 study group that ensures implementing organizations have and use approved models and data bases for all studies and analyses. In this regard they are responsible to notify DIA to develop/update threat assessment documents. The CAG membership is determined by the lead MAJCOM and should include a minimum of one DIA representative to address intelligence (threat) issues needed to achieve Phase 0 objectives (C16).

c. Threat assessments for all Defense Acquisition Board (DAB) documents will be system-specific. However, early in the program, the degree of specificity will depend upon the definition or refinement of the concept/system at the time of threat preparation. As the system progresses through its milestones and becomes more clearly defined, threat assessments should become more specific. When significant change in the threat occurs, especially threat affecting critical system characteristics, Critical Intelligence Parameters (CIPs), and the CIP Threat Status, validated threat assessments will be revised and reissued or a change will be developed and issued outside of the normal update cycle associated with critical program events. Revisions or changes will be initiated by the responsible DoD Component and/or DIA.

d. Additional support provided by DIA is as follows:

(1) Provides independent threat assessments (utilizing the resources of the Science & Technology (S&T) Centers as needed) in order to provide the material for intelligence reports which may be required to support the DAB.

(2) Validates threat data bases, to include the target data base, and the threat assessment procedures the DoD Component intelligence commands or agencies will use in preparing system threat reports for ACAT I through IV programs, and highly sensitive classified programs. While DIA normally will not validate Category IC and Category II through IV threat assessments, if the Defense Acquisition Executive (DAE) identifies any project as being of special interest, DIA will be called upon to provide validation of threat assessments and further information.

(3) Chairs the Threat Intelligence Support Council (TISC) and coordinates functions of that body in providing intelligence support to defense acquisition projects.

(4) Must be prepared to address threat issues and concerns at DAB Committee meetings. Submits draft System Threat Assessment Reports (STARS) to the CIA for review and comment. Incorporates appropriate CIA comments into the STAR. Forwards CIA comments to the concerned DoD Component for information.

(5) Comments and provides data as required to determine the cost of unique intelligence support requirements contained in the Life Cycle Cost Estimate.

8. **ENTRANCE/EXIT CRITERIA:**

a. Entrance: Whenever requested, whether by the user or the acquisition community, the DIA will provide support using key data extracted from approved intelligence community threat information.

b. Exit: The DIA will support AF/IN by reviewing and validating threat documentation in support of the systems acquisition process.

9. **KEY INPUTS AND OUTPUTS:**

a. Inputs: Milestone 0 - Concept Studies Approval which marks the initial interface between the requirements generation and the acquisition management system (A9).

b. Outputs: Intelligence support to the Air Force by providing input, review, and validation of threat documentation as it is initiated by the acquisition command between MS 0 and MS I.

10. **IMPLEMENTATION TOOLS:** The Threat Intelligence Support Council (TISC) is the primary forum used by the DIA and the DoD Components to resolve issues, provide and obtain guidance, and make recommendations to the Director, DIA, and the Service Intelligence Chiefs concerning intelligence support to defense acquisition.

11. **KEY REFERENCES:** AFSC Regulation 200-3, Threat Assessment Documentation, 5 Apr 85, Attachment 1. This regulation contains Director of Intelligence responsibilities and threat standardization and review policies.

12. **PLANNING GUIDANCE:**

a. **DURATION:** DOD policy requires that the effectiveness of a proposed concept or system within its intended threat environment be a fundamental concern of the acquisition effort. Therefore, DIA threat support is ongoing through all phases of the systems acquisition process.

b. **CONSTRAINTS:** Limitations and restrictions on data flow, data bases; and resources (see next paragraph).

c. **RESOURCES:**

(1) DIA/DTI-AC is presently organized into three groups which reflect their membership of three standing committees for the DAB. They are grouped into Strategic Systems, Conventional Systems, and Command, Control, and Communications. The entire organization has 26 individuals including analysts and administrative support. Eight acquisition staff officers are designated to a number of acquisition programs. For example, one staff officer/analyst may serve on the Command, Control, and Communications group for all services minus satellites while another analyst might work Strategic Systems, i. e., the B-2 Bomber, the M-X Missile, and the Strategic Defense Initiative. The third group, Conventional weapons, is subdivided into the three services, and one person would work all Air Force programs.

(2) One project action officer may be assigned from the project team to interface with the intelligence community through the Product Center Director of Intelligence (DI) (ASC/NAIC/TIA for ASC). This is not a full time job.

d. **LESSONS LEARNED:** Early and continued collaboration among the DIA and the Air Force Intelligence community will expedite the development, review, and validation of threat documentation and help to ensure its availability to all concerned in a timely manner.

e. **BEST PRACTICES:** The project team needs to:

(1) Get the DIA to participate in Threat Steering Groups (TSGs) for DAB programs. They must be requested by AF Intelligence Command or Agency, the project manager or other acquisition authority.

(2) Encourage CIA participation when appropriate.

(3) Establish close working relationships with AF/IN, AFISA/INA, Product Center DI, and other members of the intelligence community.

(4) For additional information on DIA threat support, please call: HQ AFISA/INAA, DSN 225-7577, HQ AFMC/IN, DSN 785-2869, ASC/NAIC/TIA, DSN 785-4285,DIA/DTI-AC, Area Code 202-373-8312.

f. **TRAPS:** When preparing program documentation that contains threat information, project teams must ensure threat data remains consistent in the various documents. That's why early DIA threat support is important. Failure to do so may lead to confusion, misunderstanding, and invalidation by the DIA.

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1. **ELEMENT:** A12, TBS 1.2.3.8.3 (IFC 93-3)

2. **ELEMENT TITLE:** Update POM/BES

3. **ELEMENT OWNER:** Secretary of Defense

4. **ELEMENT STAKEHOLDER(S):** Comptroller, Office of the Secretary of Defense; CINCs; Joint Staff; OSD Staff; OMB Staff; Defense Planning and Resources Board; HQ USAF; MAJCOMs; Program Element Monitor (PEM); Project Team, and Product Center/FM.

5. **REQUIREMENT:** DoD Directive 7045.14, The Planning, Programming, and Budget System (PPBS), 22 May 1984.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this POM/BES exercise is to update (or create) the approved DoD financial planning documentation. For a specific project, this represents the primary opportunity to obtain approval for the projected funding requirements.

b. Objective: The objective is for all levels of review (Services, OSD, and Executive) to develop a comprehensive and integrated plan which supports the Defense Planning Guidance (A1). At the project level, it should be the objective of the project office to get the program financial requirements approved at the earliest opportunity to prevent schedule delays due to funding availability.

7. **DESCRIPTION:** The FYDP (Future Years Defense Program) is the official DoD data base and document. It is a compilation of the total resources (forces, manpower, and dollars) programmed for DoD, arranged by Major Force Program (MFP) and appropriation. The FYDP projects 6 years for all data except forces, which extend an additional 3 years. For a specific project, the POM represents an opportunity to get the projected resource requirements documented in the Program Cost Estimate (D47) approved.

a. Background: OSD provides national security policy as documented in the Defense Planning Guidance (A1) to the Services to start the POM development process around December in the odd-numbered years. This provides Secretary of Defense (SECDEF) fiscally-constrained guidance on policy, strategy, force planning, and resource planning. During this same time frame, OSD provides the POM documentation requirements, the POM Preparation Instructions (PPI) to the Services, and based on this direction, the Services provide their POM proposals to OSD (B13) the following April.

b. The Program Objective Memorandum: After receipt of the Services' POM submissions, the Chairman of the Joint Chiefs of Staff (CJCS) provides an assessment of the POMs to assist the SECDEF's decisions on the defense planning. This is documented in the Chairman's Program Assessment (CPA), which provides an assessment of the balance, adequacy, capabilities, and risks of the Service POMs, and recommends actions to improve overall defense capability within OSD fiscal guidance. In addition, after the POMs are received, OSD, JCS, and the CINCs convene Program Reviews to determine Service compliance to the Defense Planning Guidance, and to develop more cost-effective alternatives to the Services' proposals. The program alternatives are described and analyzed in Issue Papers which are provided for action to the Defense Planning and Resources Board (DPRB), which serves as the SECDEF's corporate review body. The DPRB members are the Service Secretaries and other senior officials, and it is chaired by the DEPSECDEF. Any issues that are approved by the SECDEF are recorded in Program Decision Memorandums (PDMs) and the PDMs are used to update the Services' data bases and POM documentation.

c. The Budget Estimate Submission: While OSD is holding the Program Reviews, the Air Force conducts a Summer Review, which consists of an evaluation of the pricing and execution of the Air

Force investment accounts (research and development, procurement, and military construction). Program and financial information from this review, plus any PDMs issued by OSD, and any necessary repricing of elements in the databases, are used to develop the Air Force Budget Estimate Submission (BES), which is submitted to OSD. After OSD receipt of the Services' BES packages, a joint Assistant Secretary of Defense (Comptroller)/ Office of Management and Budget (OMB) Budget Review is conducted to ensure the programs and dollars are correctly matched. The final decisions are documented in Program Budget Decisions (PBDs) and Defense Management Report Decisions (DMRDs). The Services are allowed a final opportunity to take exception to the PBDs/DMRDs in the Major Budget Issues cycle, and then the DEPSECDEF signs the final PBDs/DMRDs. This process should be complete in December, with the submission of the Defense Budget to OMB.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The POM activities in OSD start with the receipt of the Services' POM submissions (B13), the first of April of the even-numbered years. The OSD BES activities start in mid-September of the even-numbered years, upon receipt of the Service' BES submissions (B13).

b. Exit: For the POM, the OSD activity is completed with the signing of the Program Decision Memorandums (PDMs) by the Secretary of Defense in July/August. The BES activity is completed when the signed PBDs/DMRDs are incorporated into the Defense Budget which is then delivered to OMB.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) For the POM, necessary information is contained in the Defense Planning Guidance (A1), the FYDP, the POM Planning Instructions, the Services' POM submissions (B13), the Chairman's Program Assessment and the Issue Papers from the Program Reviews.

(2) For the BES, the required inputs are the OSD POM documentation, the Program Decision Memorandums, and the final Program Budget Decisions and Defense Management Report Decisions.

b. Outputs:

(1) For the POM, the outputs are the Program Decision Memorandums.

(2) For the BES, the output is the Defense Budget documentation which is delivered to OMB, and becomes the President's Budget.

10. KEY REFERENCES: The references below provide more specific implementation guidance.

a. AFP 172-4, The Air Force Budget Process, Oct 87 - Describes the Air Force budget process.

b. DoDI 7045.7, Implementation of the Planning, Programming, and Budgeting System (PPBS), 23 May 84 - Describes the budget process within the Department of Defense.

11. IMPLEMENTATION TOOLS: "The PPBS Primer," 7th Edition, Jan 93. This document, while still "draft," is published by the Directorate of Programs and Evaluation, Department of the Air Force, and provides a valuable description of the Air Force and OSD budget processes. This is one of the few documents that describes the current process, and it does so in detail. Further, it defines the activity schedule for the development of the FY96 POM. However, there is not a great deal of information on the POM preparation and actions taken at the field level.

12. PLANNING GUIDANCE:

a. DURATION: The OSD POM activity begins after receipt of the Services' POM inputs in April, and continues through August, with the publication of the PDMs. The OSD BES activities occur from the mid-September receipt of the Services' BES inputs to December, when the approved documentation is delivered to OMB.

b. CONSTRAINTS: The primary constraints to this activity are the resource limitations placed on OSD, the program information required from the Services to support decision making, and the schedule limitations inherent in the budget timetable.

c. RESOURCES: The POM deliberations within OSD require intense activity by the Services to answer questions and to work issues. The Program Element Monitor is a key player in working program issues, but all the participants in the Air Force POM preparation may be involved. The Project Office may be requested to develop program alternatives to support deliberations, or provide other program data. The BES generation is also an extensive exercise, but is more limited, since it is primarily a financial repackaging and adjustments to the approved POM position. It is not uncommon for project office personnel to testify before the OSD analysts in the BES reviews. This testimony can become critical in the Program Budget Decision (PBD) analysis.

d. LESSONS LEARNED: During the OSD POM deliberations and reviews, it is important that the project manager keep in close contact with the Program Element Monitor. This is important to help resolve issues that may arise, and to ensure that the PEM fully understands all the pertinent aspects of the project, and can defend the projected resource requirements. Moreover, the Project Office must ensure that the PEM is provided all documentation needed to support the project. The need for consistency in the data provided cannot be over-emphasized.

e. BEST PRACTICES: After submission of the POM package, the project office should posture itself to be able to respond effectively to programmatic questions, often within a few hours, and be able to generate quantitative answers to the PEMs requests to develop and price out program variations to the POM submission. The capability to generate quality "what-if" information quickly (in a few hours) is important, since the PEM may be required to make modifications to the Air Force POM request in terms of funding levels, quantities, schedules, or other programmatic aspects. If a project office is unable to provide the necessary information in time to support the decision makers, the project may not be supported, or might be approved with insufficient funding levels. Further, if the project office doesn't provide the data in a responsive manner, the PEM (or others) may be forced to use whatever information they have at hand - whatever information we can provide should be better than what is generated without our inputs. Also, it is not unusual for project office personnel to try to get invited to the OSD reviews.

f. TRAPS: If this is the first POM submission for the project, the submission should be considered a "New Start," and identified as such. There may be additional documentation requirements and a higher level of review for these projects/programs, since there is not an existing funding line. Due to this, the project office must be especially prepared to defend project requirements and perform programmatic excursions. As more participation occurs in the review process, the need for consistency in the information provided is essential, to limit confusion and obtain OSD support.

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1. **ELEMENT:** A13, TBS 1.2.4.5.5 (IFC 93-3)

2. **ELEMENT TITLE:** Update POM/BES

3. **ELEMENT OWNER:** Secretary of Defense

4. **ELEMENT STAKEHOLDER(S):** Comptroller, Office of the Secretary of Defense; CINCs; Joint Staff; OSD Staff; OMB Staff; Defense Planning and Resources Board; Hq USAF; MAJCOMs; Program Element Monitor (PEM); Project Team, and Product Center/FM.

5. **REQUIREMENT:** DoD Directive 7045.14, The Planning, Programming, and Budget System (PPBS), 22 May 84.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this POM/BES exercise is to update (or create) the approved DoD financial planning documentation. For a specific project, this represents the primary opportunity to obtain approval for the projected funding requirements.

b. Objective: The objective is for all levels of review (Services, OSD, and Executive) to develop a comprehensive and integrated plan which supports the Defense Planning Guidance (A1). At the project level, it should be the objective of the project office to get the program financial requirements approved at the earliest opportunity to prevent schedule delays due to funding availability.

7. **DESCRIPTION:** The FYDP (Future Years Defense Program) is the official DoD data base and document. It is a compilation of the total resources (forces, manpower, and dollars) programmed for DoD, arranged by Major Force Program (MFP) and appropriation. The FYDP projects 6 years for all data except forces, which extend an additional 3 years. For a specific project, the POM represents an opportunity to get the projected resource requirements documented in the Program Cost Estimate (D53) approved.

a. Background: OSD provides national security policy, as documented in the Defense Planning Guidance (A1), to the Services to start the POM development process around December in the odd-numbered years. This provides Secretary of Defense (SECDEF) fiscally-constrained guidance on policy, strategy, force planning, and resource planning. During this same time frame, OSD provides the POM documentation requirements, the POM Preparation Instructions (PPI) to the Services, and based on this direction, the services provide their POM proposals to OSD (B16) the following April.

b. The Program Objective Memorandum: After receipt of the Services POM submissions, the Chairman of the Joint Chiefs of Staff (CJCS) provides an assessment of the POMs to assist the SECDEF's decisions on the defense planning. This is documented in the Chairman's Program Assessment (CPA), which provides an assessment of the balance, adequacy, capabilities, and risks of the Service POMs, and recommends actions to improve overall defense capability within OSD fiscal guidance. In addition, after the POMs are received, OSD, JCS, and the CINCs convene Program Reviews to determine Service compliance to Defense Planning Guidance, and to develop more cost-effective alternatives to the Services' proposals. The program alternatives are described and analyzed in Issue Papers which are provided for action to the Defense Planning and Resources Board (DPRB), which serves as the SECDEF's corporate review body. The DPRB members are the Service Secretaries and other senior officials, and it is chaired by the DEPSECDEF. Any issues that are approved by the SECDEF are recorded in Program Decision Memorandums (PDMs) and the PDMs are used to update the Services' data bases and POM documentation.

c. The Budget Estimate Submission: While OSD is holding the Program Reviews, the Air Force conducts a Summer Review, which consists of an evaluation of the pricing and execution of the Air

Force investment accounts (research and development, procurement, and military construction). Program and financial information from this review, plus any PDMs issued by OSD, and any necessary repricing of elements in the databases, are used to develop the Air Force Budget Estimate Submission (BES), which is submitted to OSD. After OSD receipt of the Services' BES packages, a joint Assistant Secretary of Defense (Comptroller)/ Office of Management and Budget (OMB) Budget Review is conducted to ensure the programs and dollars are correctly matched. The final decisions are documented in Program Budget Decisions (PBDs) and Defense Management Report Decisions (DMRDs). The services are allowed a final opportunity to take exception to the PBDs/DMRDs in the Major Budget Issues cycle, and then the DEPSECDEF signs the final PBDs/DMRDs. This process should be complete in December, with the submission of the Defense Budget to OMB.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The POM activities in OSD start with the receipt of the Services POM submissions (B16), the first of April of the even-numbered years. The OSD BES activities start in mid-September of the even-numbered years, upon receipt of the Service BES submissions (B16).

b. Exit: For the POM, the OSD activity is completed with the signing of the Program Decision Memorandums (PDMs) by the Secretary of Defense in July/August. The BES activity is completed when the signed PBDs/DMRDs are incorporated into the Defense Budget which is then delivered to OMB.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) For the POM, necessary information is contained in the Defense Planning Guidance (A1), the FYDP, the POM Planning Instructions, the Services' POM submissions (B16), the Chairman's Program Assessment and the Issue Papers from the Program Reviews.

(2) For the BES, the required inputs are the OSD POM documentation, the Program Decision Memorandums, and the final Program Budget Decisions and Defense Management Report Decisions.

b. Outputs:

(1) For the POM, the outputs are the Program Decision Memorandums.

(2) For the BES, the output is the Defense Budget documentation which is delivered to OMB, and becomes the President's Budget.

10. KEY REFERENCES: The references below provide more specific implementation guidance.

a. AFP 172-4, The Air Force Budget Process, Oct 87 - Describes the Air Force budget process.

b. DoDI 7045.7, Implementation of the Planning, Programming, and Budgeting System (PPBS), 23 May 84 - Describes the budget process within the Department of Defense.

11. IMPLEMENTATION TOOLS: "The PPBS Primer," 7th Edition, Jan 93. This document, while still "draft," is published by the Directorate of Programs and Evaluation, Department of the Air Force, and provides a valuable description of the Air Force and OSD budget processes. This is one of the few documents that describes the current process, and it does so in detail. Further, it defines the activity schedule for the development of the FY96 POM. However, there is not a great deal of information on the POM preparation and actions taken at the field level.

12. PLANNING GUIDANCE:

a. DURATION: The OSD POM activity begins after receipt of the Services' POM inputs in April, and continues through August, with the publication of the PDMs. The OSD BES activities occur from the mid-September receipt of the Services' BES inputs to December, when the approved documentation is delivered to OMB.

b. CONSTRAINTS: The primary constraints to this activity are the resource limitations placed on OSD, the program information required from the Services to support decision making, and the schedule limitations inherent in the budget timetable.

c. RESOURCES: The POM deliberations within OSD require intense activity by the Services to answer questions and to work issues. The Program Element Monitor is a key player in working program issues, but all the participants in the Air Force POM preparation may be involved. The Project Office may be requested to develop program alternatives to support deliberations, or provide other program data. The BES generation is also an extensive exercise, but is more limited, since it is primarily a financial repackaging and adjustments to the approved POM position. It is not uncommon for project office personnel to testify before the OSD analysts in the BES reviews. This testimony can become critical in the Program Budget Decision (PBD) analysis.

d. LESSONS LEARNED: During the OSD POM deliberations and reviews, it is important that the project manager keep in close contact with the Program Element Monitor. This is important to help resolve issues that may arise, and to ensure that the PEM fully understands all the pertinent aspects of the project, and can defend the projected resource requirements. Moreover, the Project Office must ensure that the PEM is provided all documentation needed to support the project. The need for consistency in the data provided cannot be over-emphasized.

e. BEST PRACTICES: After submission of the POM package, the project office should posture itself to be able to respond effectively to programmatic questions, often within a few hours, and be able to generate quantitative answers to the PEMs requests to develop and price out program variations to the POM submission. The capability to generate quality "what-if" information quickly (within a few hours) is important, since the PEM may be required to make modifications to the Air Force POM request in terms of funding levels, quantities, schedules, or other programmatic aspects. If a project office is unable to provide the necessary information in time to support the decision makers, the project may not be supported, or might be approved with insufficient funding levels. Further, if the project office doesn't provide the data in a responsive manner, the PEM (or others) may be forced to use whatever information they have at hand - whatever information we can provide should be better than what is generated without our inputs. Also, it is not unusual for project office personnel to try to get invited to the OSD reviews.

f. TRAPS: If this is the first POM submission for the project, the submission should be considered a "New Start," and identified as such. There may be additional documentation requirements and a higher level of review for these projects/programs, since there is not an existing funding line. Due to this, the project office must be especially prepared to defend project requirements and perform programmatic excursions. As more participation occurs in the review process, the need for consistency in the information provided is essential, to limit confusion and obtain OSD support.

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1. **ELEMENT:** A14, TBS 1.4.01.0 (IFC 93-3)

2. **ELEMENT TITLE:** Validate STA(R) (DIA)

3. **ELEMENT OWNER(S):** Defense Intelligence Agency (DIA)

4. **ELEMENT STAKEHOLDER(S):** HQ USAF/IN, HQ AFIC, HQ AFISA/IN, HQ USAF/ICO, HQ USAF/XOR, SAF/AQ, Operating Commands, Implementing Command, Product Centers, Product Centers' Director Of Intelligence, PEO, and DAC.

5. **REQUIREMENT:**

a. DOD Directive 5000.1, Defense Acquisition, Part 1, para.B, 2 c,d, 23 Feb 91. Specifies that intelligence reports will be part of every acquisition program.

b. DOD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, Part 4, Section A, paragraphs 2 and 3, 23 Feb 91. Policies and procedures for intelligence support for acquisition programs.

c. DOD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, Part 13, Section A, paragraphs 4,b,(1)(b) and (f), and Part 11, Section C, Atch 1, 23 Feb 91. Program Draft and Final Documentation Submissions.

d. DIA Regulation 55-3, Intelligence Support for Defense Acquisition Programs, paragraphs 7 thru 10, 30 Mar 92. Directive which describes how to support acquisition programs.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The Defense Intelligence Agency (DIA) is required to validate the threat to be countered (contained in the Operational Requirements Document (ORD) and STAR) and prepare the intelligence report in support of each Defense Acquisition Board (DAB) Milestone Decision Review.

b. Objective: To get the STAR approved prior to Acquisition Board Review.

7. **DESCRIPTION:** At this point in the process, DIA is required to validate the work of the Component Intelligence Service to provide a cross check of the threat documentation prior to the review process. This activity should begin as soon as the threat document is ready and conclude prior to the DAB review. DIA is required to validate threat documentation, threat data bases, and threat assessment procedures used in analyses leading to milestone decisions and system development.

a. To initiate validation of the STAR, HQ USAF/IN will forward threat documents to DIA under a covering memorandum indicating their approval or disapproval. In this case, the threat document is the STAR that was prepared specifically for the appropriate alternative concept(s) selected for presentation at MS I review. STARs prepared in support of joint programs must have other Component (Army, Navy, etc.) coordination prior to submission to DIA. Other DAB documentation with threat content will be consistent with the STAR and forwarded to DIA by the cognizant DoD offices. DIA review and validation will be based upon the intended use of the document to support the system acquisition. DIA review will stress appropriateness of the judgments, consistency with existing intelligence positions, and logic of extrapolations from existing intelligence. Upon receipt and incorporation of DIA comments, HQ USAF/IN will forward a letter to DIA certifying that the changes have been made, or provide a written reclama with justification. In case you run across any documents you need for your project / study, check for the following statements to see if they have been reviewed. Documents reviewed and validated will have the following statement in the preface: "The Defense Intelligence Agency has validated this document for use in analysis supporting (Program name) Milestone I decisions and development activities taking place during Phase I." Where documents are validated but do not support a specific program, the

following statement will be used: "The Defense Intelligence Agency has validated this document for use in support of the systems acquisition process." Notification of nonvalidation will be provided to HQ USAF/IN as soon as possible.

b. A written Intelligence Report will be provided by DIA to the DAB Milestone Decision Authority prior to each Milestone Decision Review. For Milestone I, Concept Demonstration Approval, the intelligence report will confirm the validity of the data base and documents used to define the threat to be countered and projected threat that has been developed for the preferred concept(s) that supports the ORD. There is no need to develop a STAR for every concept that was studied in Phase 0. Only the preferred concept(s) should have a STAR developed for it.

c. In addition to reviewing and validating the STAR, a DIA Intelligence Report will be prepared by the DIA and submitted to the Under Secretary of Defense for Acquisition (USDA), the Joint Requirements Oversight Council (JROC), the Component Acquisition Executive (CAE), the Program Executive Officer (PEO) and the Program Manager as part of the DAB Committee and DAB read-ahead packages. The report is approved by the Director of the DIA.

8. **ENTRANCE/EXIT CRITERIA:**

a. Entrance: The entrance criteria for this element is D56, Update Systems Threat Assessment (Report) (STA(R)). The Product Center Director of Intelligence (DI) (for ASC it is ASC/NAIC/TIA) normally prepares the STAR, DIA validates the STAR for ACAT I Projects. If the project is not ACAT I, HQ USAF/IN approves the STA. At the DAB, normally AFISA briefs the STAR.

b. Exit: This element exits to B22, Review Milestone I Documents (Air Force). The threat content in the STAR is reviewed for inclusion in the MS I data package.

9. **KEY INPUTS AND OUTPUTS:**

a. Inputs: Threat documents and the STAR forwarded by the DoD Component to DIA for validation. The STA is validated by AFISA/INA.

b. Outputs: A validated threat document and DIA Intelligence Report.

10. **KEY REFERENCES:**

a. AF Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures, paragraph 1.1.7, 16 Feb 93. Section A covers the format for writing an ORD or MNS.

b. AFSCR 200-3, Threat Assessment Documentation, Atch 1, para. 4 b., 5 April 1985 Describes how to put together a STAR

11. **IMPLEMENTATION TOOLS:** The threat and intelligence data bases, which consist of validated STARs, Threat Assessment Reports (TARs), Threat Planning Documents (TPDs), Threat Environment Documents (TEDs), approved Science and Technology (S &T) intelligence reports, regulations, standard operating procedures, and other intelligence data, such as translations of foreign reports, books, and documents. The Product Center DI should be contacted for access to these tools.

12. **PLANNING GUIDANCE:** Contributors to threat documentation need to review the draft report to ensure accurate use of their data. The Product Center DI is responsible for the drafting and coordination review of the STAR. NAIC, the Using Command, AFISA, and DIA will review draft assessments for completeness, consistency, currency and accuracy. To speed up the validation process, HQ AFMC/IN and NAIC should review the draft simultaneously. When feasible, HQ AFMC/IN will give the DIA comments from each review level via secure phone to minimize delays (Ref. AFSCR 200-3, Atch 1,

para. 4 b.). Points of contact for additional information are HQ USAF/XORJ, DSN 225-7107; ASC/NAIC/TIA, DSN 785-4285; HQ AFISA/INAA, DSN 225-7577.

a. **DURATION:** When possible, the STAR should be prepared in time to allow DIA to review and coordinate on the STAR and draft their Intelligence Report. It should be validated by DIA and published at least 1 month before the DAB or Air Force Systems Acquisition Review Council (AFSARC). The DIA Intelligence Report provides DIA's independent judgments and comments on the Component-produced STAR and will be no more than 10 pages in length. The final Intelligence Report and STAR are due to the DAB committee no later than 10 working days prior to the DAB Committee Review.

b. **CONSTRAINTS:**

(1) Limitation on the availability of data flow and data bases.

(2) Limitations on the availability of project staff.

(3) Restriction on time and money needed to get the job done.

(4) Restrictions on the availability of equipment and facilities needed to perform the task.

(5) Classification of data.

c. **RESOURCES:** Manpower, personnel, training, time, money, and materials are needed to accomplish this element. The SPO should have at least one person detailed to track this document on a part time basis.

d. **LESSONS LEARNED:** Failure to review and update threat assessment products at key program points can allow development of ineffective or unneeded weapon systems. It is likely that a poor STAR or a threat that is not documented in sufficient detail to warrant a new system will cause the project or study to be terminated. The focal point for STAR issues and information is the Product Center DI (for ASC it is ASC/NAIC/TIA).

e. **BEST PRACTICES:** Early and continued collaboration among the intelligence, requirements generation, and acquisition management communities should be maintained to ensure the timely availability of validated threat information. The following items should be addressed to aid in the development of a first class STAR:

(1) Increase accuracy and timeliness of threat assessments.

(2) Establish and maintain close cooperation among DIA, USAF/IN, Product Center DI, and other Intelligence activities.

(3) Ensure multifaceted aspects of intelligence assessments are available to support the acquisition process.

(4) Improve, update and maintain current database.

(5) Emphasize monitoring of advanced technology.

(6) Meet schedule requirements.

(7) Increase responsiveness to customer.

f. **TRAPS:** Failure to evaluate documentation regularly will result in assessments that are neither current nor accurate. To avoid schedule delays in meeting the required milestone, allow for mail delays during the review process. Use of the FAX may be helpful. Watch for classification issues with electronic transfer. Make sure STA(R)s are current and do not reflect "Cold War" assumptions.

1. ELEMENT: A15, TBS 1.4.02.2 (IFC 93-3)

2. ELEMENT TITLE: Review and Approval of Acquisition Strategy Report (ASR), Request for Proposal (RFP), Source Selection Plan (SSP) by Milestone Decision Authority (MDA)

3. ELEMENT OWNER(S): Office of the Secretary of Defense (OSD), specifically, the Under Secretary of Defense for Acquisiton (USD(A)).

4. ELEMENT STAKEHOLDER(S): Virtually everyone involved in the decision making process for a major new acquisition is a stakeholder in this process: Project/Program Managers, Integrated Product Teams, Program Executive Officers (PEOs), Operational Users, HQ AF/XO, and SAF/AQ.

5. REQUIREMENT: Under Mr. Yockey (USD(A)) in the Bush administration, this review was being handle on a case by case basis. His replacement with the Clinton administration has yet to set a new policy. With the release of Change 1, (10 March 1993) to DoDI 5000.2, the procedure has been expanded and institutionalized.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose for conducting this review is to allow the Milestone Decision Authority (MDA) the opportunity to review the Acquisition Strategy Report (ASR) and the proposed request for proposal (RFP) as previewed by SAF/AQ (B17) prior to entering into the milestone approval sequence. Subsequent to the MDA, the documentation is returned to SAF/AQ to incorporate the changes and then approve the Acquisition Plan (B17).

b. Objectives: The objective is twofold:

1) To allow the milestone decision authority the opportunity to say no without going through all the pain and effort of the milestone decision cycle, and

2) To allow the project team to conduct the entire solicitation and source selection processes while the other members of the project team prepare for and execute the milestone decision sequence. The end result of this process is a contractor signed contract available for the milestone decision authority to review as part of the milestone decision package. Since the MDA is generally the source selection authority on ACAT ID and selected DAB programs (although this is not always the case -- with the F-22, Mr. Yockey was the MDA but Secretary Rice was the source Selection Authority), then the delay in the contract award following the Milestone I decision is minimal, dependent only on the Acquisition Decision Memorandum (ADM) and the subsequent Program Management Decision (PMD).

7. DESCRIPTION:

This illustrative example is taken directly from DoDI 5000.2, Section 2. Note that this example, as a result of the 10 March 1993 Change 1, is now applicable to at Milestones I, II, and III. Part 2 describes how this process is executed for the different milestones, "the Milestone Decision Authority will approve the Acquisition Strategy Report concurrent with the Acquisition Decision Memorandum. The formal solicitation for Phase I, Demonstration and Validation, shall be released after the Milestone I Review and program new start review."

The USD(A) is fully exercising the option afforded in DoDI 5000.2, Part 2: "On an exception basis, the Milestone Decision Authority may require a formal review meeting on the Acquisition Strategy Report prior to approval."

The instructions in Part 2 of DODI 5000.2 are basically applicable to both Milestones I & II on selected ACAT ID acquisition programs (this activity is applicable to Milestone III decisions only if there has been a revision to the Acquisition Strategy Report already approved at Milestone II).

The question is: "How will I know if my project will be one of these selected ACAT ID acquisition programs?" According to the Secretariat for this review, notification is usually given in the Milestone 0 ADM. This is the method used in the case of the A/FX project (a recent Navy led joint fighter development program).

On category IC projects/programs, a formal review is not automatically required. There is a requirement to give 30 days notification prior to the release of the RFP, the announcement of a selected offeror, or the announcement of contract award. After receiving this notification the USD(A) will notify the Air Force Acquisition Executive as to whether the USD(A) intends to review the RFP or contract prior to release.

Enroute to the USD(A) review there will be several prebriefs culminating with SAF/AQ. Following the approval of the Acquisition Strategy Report and a favorable review of the RFP and Source Selection plan by the USD(A), the entire package is returned to SAF/AQ, who will then provide final approval of the Acquisition Plan. An approved Acquisition Plan is required by Federal Acquisition Regulations (FARs) prior to the release of a formal Request for Proposal (RFP).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The entrance into this process occurs when the development community and the user community come together on the plan of attack for project/program. Once this is accomplished, you can put together an Acquisition Strategy Report. At this point in the project the majority of the CE&D technical activities have been completed and the focus has shifted to "packaging" the findings.

b. Exit: The exit criteria have been met when the USD(A) approves the Acquisition Strategy and has favorably reviewed the Acquisition Plan.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The key inputs included in the documentation package submitted by SAF/AQ (B17) are:

(1) Acquisition Strategy Report (ASR) -- Reviewed and approved by the Acquisition Strategy Panel (ASP) (D61)

(2) Request for Proposal (RFP) (as required) -- The RFP should have already been through a Draft RFP process and be ready for formal release. (D64)

(3) Acquisition Plan -- Developed with inputs from the ASP, the ASR and the draft RFP (D66).

(4)Source Selection Plan -- Developed by the RFP team (D62).

b. Outputs:

(1) USD(A) approved ASR -- to be used by the Operational Roundtable as a "core" document to "harmonize" the other milestone documentation and functional plans (D67).

(2) The approved ASR allows SAF/AQ to approve the Acquisition Plan (B17) -- which will allow the proposal to be put on the street and begin the formal solicitation process (D69).

10. KEY REFERENCES:

a. DoDI 5000.2, Change 1, 10 March 1993.

b. DoD 5000.2 Manual, Change 1, 10 March 1993.

c. AFMC Pamphlet 800-7, Integrated Acquisition Strategy Process, 20 Nov 92

11. IMPLEMENTATION TOOLS: The ASC/YX Integrated Process Flowchart does an excellent job in showing the interrelationship of the IASP activities with that of the USD(A) review.

12. PLANNING GUIDANCE:

a. **DURATION:** The actual SAF/AQ review, USD(A) review and SAF/AQ follow-up review are only a day each.

b. **CONSTRAINTS:** TIME ! Given the real world constraints with the above mentioned duration and timing, lead-time for this event is considerable. Plan on at least the following:

(1) 9 - 11 months to form the RFP team, train the team, and then have then prepare an RFP appropriate for the USD(A)'s review.

(2) 6 - 8 weeks to form, notify, and conduct an Acquisition Strategy Panel (ASP)

(3) Allow 2-4 weeks to incorporate ASP comments for SAF/AQ review

(4) 2 -4 weeks to build the Acquisition Plan.

(5) 8 weeks lead-time to get on the SAF/AQ's calendar

(6) Allow 2-4 weeks to incorporate SAF/AQ's comments in preparation for the USD(A) review

(7) 8 weeks lead-time to get on the USD(A)'s calendar

(8) Allow 2-4 weeks to incorporate USD(A)'s comments in the SAF/AQ follow-up review

True, many of these activities can be done concurrently, but the project team needs to be looking ahead. A hypothetical time line on a Gantt chart is provided below:

c. **RESOURCES:** The only resources required is a knowledgeable and highly polished briefing team, but to prepare for this endeavor plan on a team of 15 - 25 people to develop the RFP.

d. **LESSONS LEARNED:** Come to both of these reviews with a complete set of support information. Have the back-ups ready. Ensure the team has fully complied with the guidance provided from the Strategic Roundtable and the ASP.

e. **BEST PRACTICES:** This entire process was designed basically to prevent a large break in a program at Milestone II while they prepared the solicitation for the next phase. It also serves a second purpose; it allows the Milestone Decision Authority (MDA) the opportunity to have two detailed reviews (this one and the DAB review) of a major or a politically sensitive project/program prior to committing to a new start. The earlier the project team engages with the action officers at the SAF/AQ and USD(A) levels, the better . The more they know about how and why the team arrived at certain decisions the fewer questions there will be down the road. This review process is an excellent opportunity to build a constituency -- don't pass it up. Make the SAF/AQ action officers a part of the project team and the decision making process.

f. **TRAPS:** Failure to allow enough lead time. Looking at the hypothetical schedule given in constraints area, it is apparent that this is a significant event and requires planning. Recommend this activity be addressed during the development of the Phase I plan and the IASP execution plan (D55).

1. **ELEMENT:** A16, TBS 1.4.10.0 (IFC 93-3)

2. **ELEMENT TITLE:** Conduct Joint Requirements Oversight Council (JROC) Requirements Review and Validation

3. **ELEMENT OWNER(S):** Chairman of the JROC

4. **ELEMENT STAKEHOLDER(S):** Chairman of the Joint Chiefs of Staff; Vice Chairman of the Joint Chiefs of Staff; Vice Chief of Staff, United States Army; Vice Chief of Naval Operations; Vice Chief of Staff, United States Air Force; Assistant Commandant, United States Marine Corps, Operating and Implementing Commands, and Product Centers.

5. **REQUIREMENT:** DoD Directive 5000.1, "Defense Acquisition," 23 Feb 91, Part 2. The Mission Need Statement for Major Defense Acquisition programs will be forwarded through established review channels to the JROC. Part 2 identifies who chairs the JROC and what the Council function is.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: Validate the proposed key performance objectives and thresholds extracted from the Operational Requirements Document (ORD) and included in the performance section of ACAT ID Acquisition Program Baselines (APBs) prior to start of the acquisition process for all Milestone I programs reviewed by the Defense Acquisition Board (DAB).

b. Objectives: Emphasis is placed on fulfilling the needs and eliminating deficiencies by accomplishing the following:

(1) Confirm that the mission need is still valid.

(2) Confirm that the proposed performance objectives and thresholds satisfy the need, given a validated threat assessment.

(3) Provide recommendations on proposed cost, performance, and schedule trade-offs based on affordability, technological constraints, interoperability, and overall program progress.

7. **DESCRIPTION:**

a. The Chairman of the JROC (Vice Chairman of the Joint Chiefs of Staff) is the principal military advisor to the Chairman of the Joint Chiefs of Staff with respect to military requirements and shall decide all matters before the Council.

(1) The draft Acquisition Program Baseline (APB) will be provided to the Secretary of the JROC by the Executive Secretary of the DAB no later than 59 calendar days prior to a scheduled DAB review.

(2) The JROC will hold a review with the program sponsor (operating command) of a program scheduled for a milestone review no later than 28 calendar days prior to the DAB review. The purpose of the review is to ensure that the performance objectives and thresholds (extracted from the Operational Requirements Document (ORD) and the Cost and Operational Effectiveness Analysis (COEA) and listed as key parameters in the performance section of the draft APB provide a capability that will satisfy the mission need. The program sponsor ensures the briefing reviews the mission need, identifies (and updates, as required) the related threat, and describes how the proposed performance objective and thresholds will satisfy the mission need. The JROC provides its recommendations to the DAB in a written assessment.

(3) The JROC will review results of concept exploration and definition studies (including the COEA) and provide an appropriate recommendation on alternatives to the Under Secretary of Defense for Acquisition (USD(A)) prior to the Milestone I (New Start) review. In its review process, the JROC ensures that military requirements are linked to the national military strategy. Emphasis is placed on fulfilling the needs and eliminating deficiencies of the combatant commands, while ensuring interoperability, reducing parallel and duplicate development efforts, and promoting economies of scale.

(4) The JROC may additionally charter and may task study groups to address operational concept definitions, joint potential, and joint requirements issues.

b. The JROC is not involved in ACAT II-IV programs except in instances where JROC assistance is requested for the purpose of resolving Service only issues. Therefore, in instances for ACAT II-IV, the individual Service Chief or DoD component head, with the implementing command Project Manager's assistance, will prepare and may validate their own documentation which is required for the particular milestone review. They are not viewed as the user in this instance and this also applies to the Commanders in Chief (CINCs). However, the preferred course of action is for the CINCs not to write their own Mission Need Statement. The required coordinated documentation is provided via Memo to the Milestone Decision Authority (MDA).

8. **ENTRANCE/EXIT CRITERIA:**

a. Entrance: Normally this occurs after completion of the Air Force Systems Acquisition Review Council (AFSARC) review (B24) and receipt of the draft APB (from the Executive Secretary of the Defense Acquisition Board) not later than 59 calendar days prior to a scheduled Defense Acquisition Board review. The JROC will review the documentation for the purpose of confirming that the proposed performance objectives and thresholds, which are identified in the APB, provide an operational capability that will satisfy the validated MNS.

b. Exit: The assessments, by the JROC, of the proposed performance objectives and thresholds for the program under review will be submitted in a memo to the USD(A).

9. **KEY INPUTS AND OUTPUTS:**

a. Inputs: This consists of receipt of the output of the AFSARC which is either an Acquisition Decision Memorandum (ADM) for non-DAB programs or, for DAB programs, an updated Integrated Program Summary (IPS) that goes to the DAB along with other required documentation. A complete list of documentation, which includes key documents such as the Operational Requirements Document (ORD) and the Acquisition Program Baseline (APB) is identified in Conduct AFSARC Review (B24).

b. Outputs: The product of the JROC will be an assessment of the proposed performance objectives and thresholds for the program under review. This written assessment is the Council's recommendations that will be submitted to the DAB.

10. **KEY REFERENCES:**

a. DoD Directive 5000.1, 23 Feb 91, "Defense Acquisition," Part 2. This directive identifies what role the user's representative plays in translating the broadly stated needs into operational performance parameters and minimum acceptable operational requirements for the proposed system; and identifies the JROC role in Milestone Reviews.

b. DoD Instruction 5000.2, 23 Feb 91, "Defense Acquisition Management Policies and Procedures," Part 13, Section A, paragraph 4b(1)(e) and Section D. This directive contains the time frame required by the JROC to hold a review, with representatives of the DoD Component, prior to the DAB as well as the purpose and product of the review. Section D identifies procedures for the JROC.

c. DoD Manual 5000.2-M, 23 Feb 91, "Defense Acquisition Management Documentation and Reports," Part 2. This directive provides the purpose and procedures for the MNS. It identifies that it should be submitted to the JROC for review and validation.

d. Administrative Instruction JROCM-050-92, 6 Jul 92, (with revised Briefing Guide, JROCM-030-93, 30 April 1993) "Joint Requirements Oversight Council." This document identifies the JROC procedures that are used to process requirements for staffing of the MNS.

e. Chairman of the Joint Chiefs of Staff (CJCS) Memorandum of Policy (MOP) No. 77, 17 Sep 92, "Requirements Generation System Policy and Procedures." This document assigns the oversight responsibility for the requirements generation system to the Vice Chairman of the Joint Chiefs of Staff, assisted by the JROC and members of the Joint Staff. It defines the role of the JROC Secretary.

11. **IMPLEMENTATION TOOLS:**

a. Administrative Instruction JROCM-050-92, 6 Jul 92, "Joint Requirements Oversight Council."

b. Chairman of the Joint Chiefs of Staff (CJCS) Memorandum of Policy (MOP) No. 77, 17 Sep 92, "Requirements Generation System Policy and Procedures."

12. **PLANNING GUIDANCE:**

a. **DURATION:**

(1) ACAT I - Approximately 60 to 90 days. (See CJCS MOP 77, 17 Sep 92, Appendix C, for sequencing.)

(2) ACAT II-IV - Since the CINC may develop, validate, and approve their own MNS in conjunction with any assistance that they request from their Service Component, it is customary for the time to be set by the component. If JROC assistance is requested, it is for the purpose of resolving lead Service issues only. (See CJCS MOP 77, 17 Sep 93, Appendix C, for sequencing.)

b. **CONSTRAINTS:** The Project Manager will attend only if requested by the JROC Chairman and approved by the DoD Component Acquisition Executive.

c. **RESOURCES:** None Identified.

d. **LESSONS LEARNED:**

(1) The user needs to identify the key parameters from the ORD to be included in the APB.

(2) The user needs to set objectives and thresholds for the key parameters that correctly reflect the defined program limits. The inability to attain these objectives and thresholds should result in program reassessment or termination.

(3) The user must ensure that the APB objectives and thresholds are consistent with the objectives and thresholds in other program documents (i.e., ORD) and that they are supported by the COEA.

e. **BEST PRACTICES:** Contact the Air Force JROC Secretariat in AF/XORJ for guidance and assistance.

f. **TRAPS:** Expect to be challenged by Program, Analysis and Evaluation (PA&E) if the proposed key parameters and threshold values are not supported by the COEA. Present rationale to JROC if this is the case.

1. ELEMENT: A17, TBS 1.4.08.0 (IFC 93-3)

2. ELEMENT TITLE: Conduct Office of the Secretary of Defense (OSD) Cost Analysis Improvement Group (CAIG) Review

3. ELEMENT OWNER(S): ASD/PA&E (OSD)

4. ELEMENT STAKEHOLDER(S): SAF/FM, AFCAA, Operating Command, Implementing Command, Product Center, PEO, and DAC.

5. REQUIREMENT: Title 10 United States Code 2434 and DoDI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 13, Section C, establishes the basis for the OSD CAIG review in support of Defense Acquisition Board (DAB) reviews.

6. PURPOSE/OBJECTIVES:

a. Purpose: To provide the Milestone Decision Authority (MDA) a report on the anticipated life cycle costs for the acquisition program(s) being reviewed.

b. Objectives:

(1) Determine if the Program Office Estimate (POE), the Component Cost Analysis (CCA) and the Service Cost Position (SCP) are properly prepared and documented.

(2) Prepare an independent cost assessment (Milestone I) or an independent estimate of program costs (Milestones II and III only).

7. DESCRIPTION:

a. The OSD CAIG is one of the key stops on the way to a Milestone I decision. While the review described here takes place after the AFSARC review (B24) and the OSD Documentation Review (A18), it is very important to get them involved up front when putting together the plans for Phase 0 CCA (D23) and while planning for the Milestone I review (A23).

b. The OSD CAIG reviews the Program Office Estimate (POE), the Component Cost Analysis (CCA) (formerly know as the Independent Cost Estimate (ICE)), and the Service Cost Position (SCP) to:

(1) determine whether cost estimating deficiencies exist in these estimates or their documentation and if so, are they significant enough that the milestone review should be deferred,

(2) validate the methodologies used to make the estimates,

(3) determine if additional cost studies are required, and

(4) understand the estimates.

DODD 5000.2, Defense Acquisition Management Policies and Procedures, 23 Nov 91, Part 13, Section C, explains the OSD CAIG review procedures.

(1) The CAIG ICA and CAIG Review are only a requirement at milstone I for ACAT ID programs. The CAIG ICE and CAIG Review are required by statute for both ACAT ID and IC programs at Milestones II and III.

(2) The CARD must be prepared at the planning meeting and a draft cost position must be provided with the draft documentation.

c. The OSD CAIG uses POE, CCA, SCP, the Cost Analysis Requirement Description (CARD) and other information to develop its estimate of the program life-cycle costs. The results of this analysis are included in the DAB committee Integrated Program Assessment and the committee Blue Book. DODD 5000.4, "OSD Cost Analysis Improvement Group (CAIG)," provides more information on the OSD CAIG, its membership and responsibilities, the role it plays in various ACAT I Milestone reviews, and what it will use as the basis for its estimate.

d. The Project/Program Manager attends the review only if requested by the CAIG Chairman and approved by the Assistant Secretary of the Air Force for Acquisition (SAF/AQ). DODD 5000.2, Part 13, Section C, provides guidelines for CAIG briefings. DOD 5000.4-M, Chapter 2, also provides guidance on the presentation of cost results to the OSD CAIG and procedures for a CAIG presentation.

e. The CAIG review normally takes place after the Documentation Review (A18) but not later than 21 calendar days before the Defense Acquisition Board (DAB) Committee Review (A20).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance:

(1) The Air Force Cost Analysis Improvement Group (AFCAIG) reviews (B23) all CCAs and associated POEs, and advises the Assistant Secretary of the Air Force for Financial Management (SAF/FM) on their technical adequacy, validity, and reasonableness. All CCAs presented to the OSD CAIG must be reviewed by the AFCAIG in advance. The POE and CCA must be approved by the Component Secretary before submission to OSD (B24).

(2) Successful completion of the planning meeting (A23 & B19) and the approval of the CARD (D72).

(3) The OSD documentation review (A18) should be completed before the OSD CAIG meets.

b. Exit: POE, CCA, and SCP pass OSD CAIG test of reasonableness. OSD CAIG analysis included in Committee Blue Book

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) CARD (D72),

(2) POE (D71),

(3) CCA (B21),

(4) Service Cost Position (SCP) (B23).

b. Outputs: OSD CAIG estimate of program costs is included in the DAB Committee Integrated Program Assessment and Blue Book.

10. KEY REFERENCES:

a. *TITLE 10, United States Code, Section 2434, "Independent Cost Estimates, Operational Manpower Requirements."* Established requirement for Independent Cost Estimates.

b. DoD Directive 5000.4, "OSD Cost Analysis Improvement Group (CAIG)," 24 Nov 92. Explains OSD CAIGs responsibilities, reporting requirements, and membership. Includes explanation of requirements for various acquisition categories.

c. DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," Part 15, Feb 91. Provides guidance on developing and documenting POEs and ICEs including which program elements the estimates must address.

d. DoDI 5000.2, "Defense Acquisition Management Policies and Procedures," Part 10, 23 Feb 91. Establishes the basis for the production and review of cost estimates in support of defense acquisition programs.

e. DoDI 5000.2, "Defense Acquisition Management Policies and Procedures," Part 13, 23 Feb 91. Explains the purpose and timing of the OSD CAIG review.

f. The AFSC Cost Estimating Handbook, Chapter 16, "The Independent Cost Analysis Program." Provides background information behind the establishment of the ICA program and the role the OSD CAIG plays in the Milestone Review Process.

g. AFR 173-11, "Independent Cost Analysis Program," 7 Oct 86. Provides guidance on Air Force implementation of the ICA program.

h. HQ AFSC/FMC letter, "Preparation of the Cost Analysis Requirements Description (CARD) 31 Jan. 92. Explains the purpose of the CARD and provides guidance on what to include in the CARD.

(i) DOD 5000.4-M, Cost Analysis Guidance and Procedures, Dec 92. Chapter 2 provides criteria and procedures for the preparation and presentation of cost analyses to the OSD CAIG.

11. IMPLEMENTATION TOOLS: None Identified.

12. PLANNING GUIDANCE:

a. DURATION: A typical CAIG briefing will last 2 hours. DODD 5000.2, Part 13, Section C, provides a rough agenda. Following is a time line showing the major events on the way to an OSD CAIG review:

Days Before DAB	Event
190	SAF/FMC notifies the Implementing and Operating Commands of estimate baseline requirement (CARD) and Component Cost Analysis (CCA) requirements (i.e., COEA, IPS summaries, and ICE). Historically CCAs/ICEs have been done by the Product Center Staffs. However, the AFCAA will do the CCA/ICE for ACATs II & III and should pick up responsibility for ACAT I in FY 93 and ACAT IV in FY 94.
180	DAB Planning Meeting (A23, Conduct DAB Planning Meeting)- The OSD CAIG assesses the Air Force progress in preparing key milestone documents such as the COEA and cost estimates. The program office CARD is reviewed at this time to ensure it provides sufficient program definition to accomplish a CCA (i.e., groundrules and assumptions, systems description, technical descriptors and acquisition plans). The appropriate SAF/AQ office must endorse the CARD before it is submitted to the OSD CAIG for discussion at the DAB planning meeting. The result of the meeting should be a fully coordinated plan of cost estimating documentation required (scope, content, schedule, alternative estimates required, etc.).

175 CARD presented to DAB and POE documentation (Program Executive Officer (PEO)/Designated Acquisition Commander (DAC) approved) delivered to CCA team and SAF/FMCCC

165 Draft CCA plan to SAF/FMCCC.

160 SAF/FMCCC and CCA team review CCA plan.

129 Mid-term review.

104 Final POE documentation to CCA team.

88 SAF/FMCCC leads reconciliation of CCA to POE at AFMC.

74 CCA draft documentation to SAF/FMCCC.

71 SAF/FMC technical director's "shirt sleeve" review of POE and CCA.

66 AF CAIG meeting. The findings of the "shirt sleeve" review are discussed and the Air Force Cost Position is developed.

63 AF CAIG reports findings to SAF/FM, includes recommended Air Force Cost Position.

60 AFSARC briefed (B24, Conduct AFSARC Review).

59 Draft documentation of POE and CCA to OSD along with Final CARD as part of Draft Documentation Package.

44 OSD Draft Documentation Review (A18, Review MS I documents).

35 OSD CAIG meeting. The purposes of the meeting are to review independently the POE and CCA (ICE, COEA, and parts of IPS that discuss cost/affordability); to validate the methodology used to make the cost estimates provided; to determine whether additional analysis, which the CAIG may undertake itself, is required; and to be given an explanation of the DoD Component cost position.

The program Manager may attend the review only if requested by the Cost Analysis Improvement Group Chair and approved by the DoD Component Acquisition Executive.

The COEA is briefed by the Using Command (C29, Brief COEA Results to OSD(PA&E)).

The product of the review will be a CAIG independent cost position for the program under review. This cost position will be presented to the DAB Committee and included as part of the Committee Report.

24 Final Documentation to DAB Executive Secretary (A19, Submit Final MS I Documents Due). OSD CAIG assessment is included in the Committee Blue Book.

14 Systems Committee Review (A20, Conduct Committtee Review)

0 DAB (A22, Conduct DAB MS I Review).

b. CONSTRAINTS: The estimating methods and approaches and data availability are typically very limited at Milestone I.

c. **RESOURCES:** Dependent on program complexity and issues. Formal briefing to CAIGs may be preceded by one or two working level reviews, up to a day long each.

d. **LESSONS LEARNED:** CAIG reviews are critical milestones in the DAB process The program manager should attempt to get invited and adjust his schedule to attend CAIG reviews when invited.

e. **BEST PRACTICES:** When DAB is scheduled, the program office, AFCAA, AFCAIG, and OSD CAIG representatives should meet as soon as possible to ensure that the estimates to be presented to the CAIGs will satisfy requirements and have consistent groundrules and assumptions, scope, etc.

f. **TRAPS:** The COEA/POE/CCA may be revised up to the last minute prior to the CAIG reviews. It is important that the analysis chief keep all affected teams apprised of changes or problems and that comprehensive explanations of estimate differences be provided to the CAIGs. The POE, CCA and SCP estimates must be consistent with the estimates in the Cost and Operational Effectiveness Analyses and other program documentation.

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1. **ELEMENT:** A18, TBS 1.4.09.1 (IFC 93-3)

2. **ELEMENT TITLE:** Review Milestone Documentation (DoD)

3. **ELEMENT OWNER(S):** OSD/AP&PI/ASM

4. **ELEMENT STAKEHOLDER(S):** SAF/AQXA, Operating Command, Implementing Command, Product Center, PEO, DAC, and Project Manager

5. **REQUIREMENT:** DoDI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 13, Sections A and B. Describes the requirements, time frame, and attendees for the Documentation Review.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The OSD documentation review serves as the single OSD meeting for identifying and reviewing major questions raised by the draft documentation, including the adequacy of the documentation, and any new developments since the planning meeting in preparation for the Defense Acquisition Board (DAB) for Acquisition Category (ACAT) I acquisitions. (Detailed information regarding the entire DAB review process and time frames can be found in DoDI 5000.2, Part 13, Section A.)

b. Objectives: To ensure that issues raised by the draft documentation are addressed prior to submission of the final documents to the DAB Executive Secretary.

7. **DESCRIPTION:**

a. Prior to the OSD Documentation Review, the draft documents will have been submitted and the results documented in the Committee Memo (A23). The Cost Analysis Requirements Document (CARD) will have been reviewed and forwarded for the Component Cost Analysis effort (B21). In addition, a list of the milestone documents required for the Milestone Decision Authority (MDA) will have been forwarded from OSD (A23) to the Project Manager along with any issues pertaining to those documents (D68).

b. The Documentation Review is held approximately 4 months after the DAB Planning Meeting (A23) and no later than 30 days prior to the Committee Review, is chaired by the cognizant DAB Committee Chair (or a representative), and includes representatives of the Committee principals and of the DoD Component (see A20 for a list of members). The DAB is supported by three committees chartered by the USD(A):

(1) Strategic Systems Committee (SSC)

(2) Conventional Systems Committee (CSC)

(3) Command, Control, Communications, and Intelligence Systems Committee (C3SC)

c. The Project Manager begins the meeting with a summary briefing covering program technical content and risks, cost-effectiveness, threat, acquisition strategy, supportability and producibility, test plans and results, a status update since the DAB Planning Meeting, and a documentation status chart (A23). The Project Manager should answer the concerns and issues from the planning meeting and from OSD review of draft documentation through his/her briefing.

d. After completing the review, OSD documents the results and major issues raised during the documentation review via the updated Major Issues Guidance Memorandum. The memorandum is submitted to the Air Force Acquisition Executive (AFAE) within 5 calendar days from the Documentation Review and will be coordinated with the DAB principals. This memorandum will identify major questions not answered at the Documentation Review and any major deficiencies and issues regarding the draft milestone documentation. The

memorandum may also delete issues from the milestone documentation and the Project Manager's briefing for the Committee Review if it was agreed that the issue had been resolved at the Documentation Review. The final documents, adjusted to address issues identified at the Documentation Review, must be submitted to the DAB Executive Secretary not later than 10 days prior to the scheduled DAB Committee Review (A19).

e. A DAB date will not be finalized on the DAB Executive Secretary's calendar until the Documentation Review is successfully completed.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: This activity begins upon receipt of the Service draft documentation by the DAB Executive Secretary at least 45 days prior to the planned DAB Committee meeting.

b. Exit: The results of the Documentation Review meeting are documented in the updated Major Issues Guidance Memorandum, which is to be prepared within 5 days after the review.

9. KEY INPUTS AND OUTPUT:

a. Inputs: The following documents are to be submitted for DAB reviews.

ACAT I

Operational Requirements Document (ORD) (B15)
System Threat Assessment Report (STAR) (A14)
DIA Intelligence Report
JROC Assessment
Integrated Program Summary (IPS) (D68)
Integrated Program Assessment (IPA)
Program Life Cycle Cost Estimate (PLCCE) (D71)
*Acquisition Program Baseline (APB) D51)
*Test & Evaluation Master Plan (TEMP) (D68)
Component Cost Analysis (CCA) (A17)
*CCA Report
Cost & Operational Effectiveness Analysis (COEA) (B15)
Draft Acquisition Decision Memorandum (ADM)

*Required by Congress

b. Output: The product of the documentation review is a Committee Memorandum to the Air Force Acquisition Executive (AFAE) from the Committee Chair.

10. KEY REFERENCES:

a. Air Force Acquisition Model (AFAM)

b. PEM/Action Officer Handbook, Apr 92, Paragraph B.4 and subs. Describes the AFSARC/DAB process.

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: Preparation for the briefing can take 2 to 3 weeks, with several people creating charts and two dedicated computer graphics specialists making viewgraphs.

b. CONSTRAINTS:

(1) Inadequate preparation of documentation

(2) Not all documents submitted on time

c. RESOURCES: The resources should include a conference room of appropriate size to accommodate the number of attendees for the Documentation Review, an operating vu-graph machine and a back-up, an individual to flip the charts as the briefer presents his/her charts, and a secretary taking notes to ensure that all comments, questions, changes, etc., are adequately and clearly documented for the resultant memo that will be issued upon completion of the review.

d. LESSONS LEARNED:

(1) At the earliest possible date, ensure with the reviewing agency that there is an agreement as to what documentation is required.

(2) Be prepared to assist in the development of, guide the preparation of, research the requirements for, and review of all documentation for the DAB to ensure accurate and timely completion.

(3) Close liaison with the Pentagon action officers in the last few days before the documentation review can produce significant results to the Project Manager. Preliminary comments from the committee staff will be forwarded the Air Force action officers as the staff prepares for the meeting. The Project Manager's briefing can be tailored at the last minute to address any known concerns. Again, work closely with the action officer who prepares the Major Issues Guidance Memorandum, to make sure it correctly documents closed issues and focuses in on a narrower scope for the committee and DAB briefing.

e. BEST PRACTICES:

(1) To ensure that all documentation is properly prepared in accordance with OSD guidance/procedures while meeting the documentation schedule, individuals within the SPO should be assigned as Offices of Primary Responsibility (OPRs) for DAB documents. Ultimately, these individuals are responsible for the success or failure of the document even if they are not the author. The OPR should identify and resolve issues that could impact the document completion timeline.

(2) It would be beneficial to the project to identify individuals outside the project office to help advise and coordinate on milestone DAB issues/documentation. This relationship should prove beneficial in obtaining a quick turn-around on DAB documents requiring OSD-level signatures, clarifying OSD and Pentagon issues/direction, and providing information to the project office.

(3) Have the AF PEO staff obtain recent examples of Documentation Review briefings and the questions of the various staff members. With good "intel" and a little "crystal ball" speculation, a single added chart to the briefing may head off a lengthy discussion

f. TRAPS: If the draft documents are not received 45 days before the Committee review, or if the DAB members are not available on the scheduled date for the DAB, then the DAB review will be postponed on a day-for-day basis. It is imperative that the Project Manager have his/her people begin working on the draft documents

well in advance of the scheduled DAB review to ensure that they meet the schedule and avoid any slips in the overall program schedule.

1. **ELEMENT:** A19, TBS 1.4.09.2 (IFC 93-3)

2. **ELEMENT TITLE:** Submit Final Milestone I Documents (Air Force)

3. **ELEMENT OWNER(S):** OSD/AP&PI/ASM

4. **ELEMENT STAKEHOLDER(S):** SAF/AQXA, Operating Command, Implementing Command, and Product Center .

5. **REQUIREMENT:** DoDI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 13, Sections A and B. Describes the requirements and time frame for final documentation submittal for the Defense Acquisition Board (DAB).

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this event is to ensure that the final documentation required by the DAB incorporates any changes that resulted from Service level review (e.g., AFSARC) and addresses issues raised during the Documentation Review (A18). (Detailed information regarding the entire DAB review process and time frames can be found in DoDI 5000.2, Part 13, Sections A and B.)

b. Objectives: The final documents are required by the DAB Committee members in order to establish the Service position.

7. **DESCRIPTION:** The final documents, adjusted to the Service position and addressing issues identified at the Documentation Review (A18), as documented in the Major Issues Guidance Memorandum, must be submitted under the signature of the Air Force Acquisition Executive (AFAE) to the DAB Executive Secretary not later than 10 days prior to the scheduled DAB Committee Review (A20). The Office of the Secretary of Defense (OSD) Cost Analysis Improvement Group (CAIG) Assessment (A17) is included in the Committee Blue Book (A20). The Service final documents are the basis for the OSD staff independent assessment of the program, which is reflected in the Integrated Program Assessment (IPA) (A21).

8. **ENTRANCE/EXIT CRITERIA:**

a. Entrance: This activity begins upon completion of the Service level review and release of the updated Major Issues Guidance Memorandum (A18).

b. Exit: Successful completion of the DAB Committee Review and issuance of the Committee Report (A20).

9. **KEY INPUTS AND OUTPUTS:**

a. Inputs: Major Issues Guidance Memorandum which addresses any major questions left unanswered from the Documentation Review and identifies major deficiencies and issues regarding the documentation. This information will be used by the Project Manager to update the documents.

b. Outputs: The following documents are submitted, as required, for the DAB:

ACAT I

Operational Requirements Document (ORD) (B15)
System Threat Assessment Report (STAR) (A14)
DIA Intelligence Report
JROC Assessment
Integrated Program Summary (IPS) (D68)

Integrated Program Assessment (IPA)
Program Life Cycle Cost Estimate (PLCCE) (D71)
*Acquisition Program Baseline (APB) D51)
*Test & Evaluation Master Plan (TEMP) (D68)
*Component Cost Analysis (CCA) (A17)
CCA Report
Cost & Operational Effectiveness Analysis (COEA) (B15)
Draft Acquisition Decision Memorandum (ADM)

*Required by Congress

10. KEY REFERENCES:

a. Air Force Acquisition Model (AFAM)

b. PEM/Action Officer Handbook, Apr 92, Paragraph B.4 and subs. Describes the AFSARC/DAB process.

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: Updating the draft documents based on the Service review and determining the disposition of the comments from the Documentation Review should take approximately 2 weeks (per DoDI 5000.2, Part 13, Section B, Attachment 1, Page 3-B-1-1). If the document requires approval or validation by an external agency, the turnaround time could take approximately 2 to 4 weeks.

b. CONSTRAINTS:

(1) Inadequate preparation of documentation.

(2) Not all documents submitted on time.

c. RESOURCES: The entire acquisition team should stand ready to turn around a possibly massive amount of changes in a relatively short period of time.

d. LESSONS LEARNED: When updating the draft documents, it is very important that someone check to ensure that all comments/questions from the Service review and from the Documentation Review have been addressed and incorporated, if warranted. If this is not done, there could be schedule slippages if the final documents have to be returned because all the comments weren't addressed.

e. BEST PRACTICES: The more time taken initially with the draft documents to ensure they are completed properly, consistent with each other, and coordinated with the appropriate people could alleviate massive changes during the Documentation Review.

f. TRAPS:

(1) Disagreement between the Service and the OSD staffs regarding the need for changes identified at the Documentation Review.

(2) Significant changes from the draft documentation required by the Service review.

1. **ELEMENT:** A20, TBS 1.4.9.3 (IFC Rev. 93-3)

2. **ELEMENT TITLE:** Conduct Committee Review (OSD)

3. **ELEMENT OWNER(S):** USD(A), Strategic Systems Committee (SSC), Conventional Systems Committee (CSC), and Command, Control, Communications, and Intelligence Systems Committee (C3ISC)

4. **ELEMENT STAKEHOLDER(S):** OSD: Dir, API, DepDir ASM,D,TS; D,S&SS; ASD(C3I), DASD(C3), DAB, CSC, SSC, C3ISC

DOD COMPONENT: Dept of Army: ASA(RDA), SARD-ZBA, Dept of Navy: ASN(RDA), Dir, RE, and Dept of Air Force: SAF/AQ, SAF/AQX

5. **REQUIREMENT:** DODI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 13, Section B. Outlines the Committee's role in the acquisition process.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: Support the Defense Acquisition Board (DAB) decision process.

b. Objectives: To accomplish the following in support of the DAB decision process:

(1) Verify that exit criteria and the minimum required accomplishments of the phase preceding the milestone have been completed.

(2) Review all issues and provide an independent assessment of the program which, together with the Component's Integrated Program Summary (IPS) is the basis for the DAB review.

(3) Make recommendations on cost-schedule-performance trade-offs proposed by the Project Manager for decision by the Under Secretary of Defense for Acquisition USD(A). (Ref: DODI 5000.2, p. 13-A-4, para. 3.c.)

(4) Provide a "Read-Ahead" (a notebook of pertinent information) to all DAB principals and recommend issues to DAB.

7. **DESCRIPTION:** The Committee Review is one of several activities as a part of the review and approval of a project to allow the Milestone Decision Authority decide whether or not a project should proceed into Phase I, Demonstration and Validation, of the acquisition process. At this point in the acquisition process the preferred alternatives documented in the Cost and Operational Effectiveness (COEA) have been briefed to OASD(PA&E) (Block C29) and the final Milestone I decision documents have been submitted to OSD *not later than 10 days prior to the scheduled committee review* (Block A19).

The DAB is supported by three committees chartered by the USD(A):

a. Strategic Systems Committee (SSC)
b. Conventional Systems Committee (CSC), and
c. Command, Control, Communications, and Intelligence Systems Committee (C3ISC) (Ref: DODI 5000.2, p. 13-A-2, para. 2.b)

Committees are composed of representation from each of the DAB principals and other members as determined by the Committee Chair. (See Block A22, Conduct DAB Milestone I Review, for a list of the DAB principals. As approved by the USD(A), the Committees can convene periodically for special reviews apart from the DAB Milestone Review process. The Committee meeting announcements will

identify those Committee members requested to attend; however, participation by other members will be welcomed. A master planning calendar prepared by the Committee staff specialist documents the scheduled Committee reviews.

As part of the DAB milestone review process, the cognizant Committee Chair will convene a meeting to review the status of a program at least 14 calendar days prior to the scheduled DAB Milestone Review, unless a shorter period of time is specifically authorized by the USD(A). (Ref: DODI 5000.2, p. 13-A-11, para. 4.b.(g).) The purpose and scope of committee reviews can vary. The exact times associated with each presentation are established by the Committee Staff Director (Ref: DODI 5000.2, p. 13-B-5, para. 3b).

In preparation for the Committee review (not less than 10 days prior to the Committee review) final documentation is forwarded by a cover memorandum signed by the DOD Component Acquisition Executive to the committee staff specialist who will distribute final documentation to appropriate Committee Members. The Committee Executive Secretary will provide a Read-Ahead (Blue Book) to all committee members at least 2 working days in advance of the Committee Review identifying the issues to be discussed at the review. (Ref: DODI 5000.2, p. 13-A-11, para. 4.b.(g)2). The Committee Blue Book includes inputs from the DOD Component and OSD offices which will assist Committee principals to prepare for their meeting. The Blue Book will address the following topics for Milestone 1 decision:

IPS
Acquisition Program Baseline
DOD(C) Financial Status Assessment
DIA Intelligence Report
PA&E Affordability Assessment
PA&E COEA Assessment
PA&E CAIG Assessment
JROC Assessment (if available)
DT&E Assessment
OT&E Assessment
DUSD (IP) Cooperative Opportunity Assessment
FM&P HSI Assessment
P&L Producibility and Industrial Base Assessment
P&L Supportability Assessment
P&L Environmental Assessment

Finally, no later than 1 working day prior to the Committee Review the Committee Staff Specialist and Director will pre-brief the Committee Chair on any unresolved documentation issues, summarize areas of concern from initial staff functional assessments, and identify cost-schedule-performance tradeoffs and proposed exit criteria. The Committee Staff Specialist will bring the meeting to order, state its purpose, and set the context for milestone decision (nominally 10 minutes). The Project Manager will then be responsible for the component presentation (approximately 60 minutes). During this presentation the Project Manager and staff at each review level will provide a report on the elements of the model agenda for reviewing a program at a milestone (Ref: DODI 5000.2, p. 11-C-2, para. 3.a & 3.b). During the Committee Review, the Project Manager will brief the Committee on the areas addressed in the IPS and on proposed cost-schedule-performance trade-offs. The Committee members will then present an assessment of the program in their functional areas, based on a review of the documentation, and focusing on risk, risk management, affordability, and proposed trade-offs. (Ref: DODI 5000.2, p. 13-A-12, para. 4.b.(g)3). The presentation will focus on the following (it will not dwell on the criticality of the need, operational concepts, doctrine or tactics, detailed technical descriptions, or other information not relevant to the decision milestone):

Decision requested
Program execution status

Threat highlights and existing system shortfalls
Alternatives assessed and results
Most promising alternative and rationale
Acquisition strategy
Cost drivers and major trade-offs
Risk assessment and plans to reduce risk
Affordability of selected alternative
Recommendations
Key issues
Issue resolution for cost-schedule-performance trades

The Committee Staff Director will then present the OSD reports. The Director will review the primary considerations necessary to make a recommendation. The Director will discuss issues in these areas and summarize the initial functional offices and their recommendations. Proposed exit criteria, tradeoffs, and risk management will also be discussed by the Director (60 minutes).

The review will focus on five questions which will be pertinent to the DAB granting approval to proceed into the next acquisition phase

1. Where are we (versus where should we be)?
2. Where are we going (and how will we get there)?
3. What risk exists (and how will we manage those risks)?
4. Is what we plan to do affordable?
5. Is the requirement being met?

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Preparation for the Committee Review cannot begin until:

(1) Draft documents are submitted.

(2) Document review is conducted.

(3) CAIG and JROC reviews are held.

(4) Final documents are submitted.

(5) The required DOD assessments are available as follows: (Block A16, Conduct JROC Requirements Review and Validation, Block A17, Conduct OSD CAIG Review, Block A18, Review Milestone Docs (DoD), and Block C29, Brief COEA I Results to OASD (PA&E)

DOD(C) Financial Status Assessment
DIA Intelligence Report
PA&E Affordability Assessment
PA&E COEA Assessment
PA&E CAIG Assessment
JROC Assessment Ref
DT&E Assessment
OT&E Assessment
DUSD (IP) Cooperative Opportunity Assessment
FM&P HSI Assessment
P&L Producibility and Industrial Base Assessment
P&L Supportability Assessment
P&L Environmental Assessment

b. Exit: This element ends when sufficient information is available to complete an independent assessment which will be documented in a forwarding memorandum and an Integrated Program Assessment (IPA) (Ref: DODI 5000.2, p. 11-C-2, para. 3), (Ref: Block A21, Write IPA (OSD).)

9. KEY INPUTS AND OUTPUTS:

Inputs: *Milestone I documentation and AFAE signed cover memorandum (Submit Final MS I Docs (Air Force), A19)*

Output: IPA and Committee Memorandum for DAB review (A21)

10. KEY REFERENCES:

DODI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Chapter 13. Outlines the Committee role in the acquisition process.

11. IMPLEMENTATION TOOLS: None known.

12. PLANNING GUIDANCE: Individuals involved in the committee review need to become familiar with the activities that must occur prior to and following the actual committee review. Familiarization needs to occur at least 166 days prior to a scheduled committee review because it is at this point that the planning meeting is held which sets the guidelines for the milestone review process. Preparing for a DAB Committee Review is a continuous process. However, there are specific events which must take place in order to have a successful review.

The process of planning for a committee review is initiated by informal discussions between the Office of the USD(A) and DOD Component personnel and by reference to the long-range schedule published by the DAB Executive Secretary. This schedule identifies the requirement to conduct a DAB review based on a program schedule, as modified by actual events.

A planning meeting held not later than 166 days prior to the committee review assesses program progress and confirms documentation requirements. Results of this meeting are documented in the committee memorandum.

a. DURATION: Regulatory time frames are included in the "DESCRIPTION and PLANNING GUIDANCE" paragraphs above.

b. CONSTRAINTS: Schedule can be a constraint. While policy now advocates an event driven schedule, it is not uncommon that there is a schedule driven timetable due to User need, the budget cycle, congressional direction, etc.

c. RESOURCES: An individual is needed to monitor status of the milestone review process. However, several members need to be involved in actually preparing for the Committee Review.

d. LESSONS LEARNED:

(1) When the B1 Program Office prepared for a Committee Review, they immediately contacted the Committee Review Chair staffers to monitor program concerns and issues and Committee requirements. Unfortunately, they were advised by these staffers that they would handle all concerns at the DOD level and there would not be any need for the Program Office to interact with other DOD offices. While these staffers did try to control DOD questions and concerns, they in fact had no authority over the other offices and were not really in tune with the concerns of the Committee members. The office of PA&E especially, had several concerns that could have been alleviated prior to the Committee

Review. Therefore, it is highly recommended that the Program Office interact directly with each of the Committee member offices to preclude last minute surprises during the Committee Review.

(2) Following the F-22 DAB briefing there was a 28 Jan 92 offsite meeting on the DAB review process as an outbrief for the DAB. Problems identified with Committee Reviews were identified and the following recommendations were offered:

Continue to press Services for strictly issue oriented briefings - no marketing at committee reviews

Elevate issues to principals as soon as possible - don't wait until DAB to have principals weigh in.

OSD presentation format should be Chairman's prerogative.
Single briefer makes for a well-structured meeting.
Multiple briefers force each functional manager to "own" his issue.
Committee Chairman to decide on case by case basis.
API Input: Strive for consistency among three committees.

e. BEST PRACTICES: All involved parties (at all levels from Product Center, USAF, and OSD) need to get involved early in the Milestone Review process in order to achieve a successful Committee Review.

f. TRAPS: Don't wait until a few weeks before the Committee Review to assess documentation/programmatic needs. Involvement needs to occur prior to the planning meeting. Don't try to market the program. This is not a "salesmanship" review. Stay with the focused review items.

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1. **ELEMENT:** A21, TBS 1.4.09.4 (IFC Rev. 93-3)

2. **ELEMENT TITLE:** Write Integrated Program Assessment (IPA) (OSD)

3. **ELEMENT OWNER(S):** Strategic Systems Committee (SSC), Conventional Systems Committee (CSC), and Command, Control, Communications, and Intelligence Systems Committee (C3ISC)

4. **ELEMENT STAKEHOLDER(S):**
OSD: USD(A) , OUSD(TS), OUSD(S&SS), Dir, AP&PI, Dep Dir ASM, DDR&E, ASD(C3I), DASD(C3), DAB, CSC, SSC, C3ISC

DOD COMPONENTS: Dept of Army (ASA(RDA), SARD-ZBA), Dept of Navy (ASN(RDA), Dir, RE), and Dept of Air Force (SAF/AQ, SAF/AQX)

5. **REQUIREMENT:** DODI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, p. 2-7, para. c.1. Outlines the milestone review documentation concept.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: Provides the basis for the Milestone Decision Review. For a Defense Acquisition Board (DAB) designated potential program, the IPA documents the recommendations of the Review Committee as part of the milestone decision process.

b. Objective: To summarize the results of the independent assessments conducted by the supporting staff and review forums.

7. **DESCRIPTION:** The IPA documents OSD's independent assessment of the potential program which is accomplished during the Committee Review (A20). It follows the format of the Integrated Program Summary (IPS), whose format and content are outlined in DOD 5000.2M, Part 4 *(D68)*.

Within 5 days after the Committee Review for Milestone 1, the Committee staff specialist should prepare the IPA (which is the Committee Chair's report), and a forwarding memorandum which will be submitted to the Defense Acquisition Board (DAB) Chair. Coordination of this document with Committee principals should be accomplished within 2 working days (Ref: DODI 5000.2, p. 13-B-6, para. c). The IPA should include recommendations to the DAB on the merits of proceeding with the program, proposed cost-schedule-performance trade-offs, and proposed exit criteria for the next acquisition phase. (Ref: DODI 5000.2, p. 13-A-12, para. 4.b.(g)4). The IPA is used to support the DAB review (A22).

8. **ENTRANCE/EXIT CRITERIA:**

Entrance: This element begins when the committee review is complete and recommendations are available to document in the IPA (Block A20, Conduct Committee Review (OSD)).

Exit: This element ends when the IPA has been approved (Ref: DODI 5000.2, p. 11-C-2, para. 3) and sent to the DAB chair (Block A22, Conduct DAB Milestone 1 Review).

9. **KEY INPUTS AND OUTPUTS:**

a. Inputs: ***IPS (Submit Final MS I Docs (Air Force), A19)***

b. Output: Issued IPA (A21)

10. KEY REFERENCES:

a. DODI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Chapter 13. Outlines Defense acquisition procedures and documentation requirements.

b. DOD 5000.2M, Defense Acquisition Management Documentation and Reports, February 1991, Part 4. Provides the format of the Integrated Program Summary (which is the format for the Integrated Program Assessment).

11. IMPLEMENTATION TOOLS: None known.

12. PLANNING GUIDANCE: For IPA preparation format see DoD 5000.2M, Part 4.

a. DURATION: Per regulation, it should take no longer than 5 days to complete the IPA.

b. CONSTRAINTS: None known.

c. RESOURCES: An OSD committee staff specialist is needed to prepare for the Committee Review, document the results of the Committee Review, and prepare, coordinate and distribute the IPA. A Committee Review Chairman is responsible to conduct the Committee Review and sign the IPA. Resources are not required for this effort within the project office. However, the Project Manager should be aware of the status and content of the IPA.

d. LESSONS LEARNED: Following the F-22 DAB briefing there was a 28 Jan 92 offsite meeting on the DAB review process as an outbrief for the DAB. At this offsite meeting several problems were identified with Committee Reviews. These problems included timeliness, transition to IPA format, and a lack of identification of who would represent OSD(P&L) at the Committee Review. The offsite members recommended early drafting (prior to Committee Review) of the IPA to facilitate timely submission following Committee Review. Further, it was recommended that the Committee Chair be responsible to press on with implementation of the IPA format to include:

- Acknowledgment that an independent cost estimate is a critical new dimension
- A cover letter which should address big issues, and
- Segregation of new issues from those previously identified.

The offsite members also recommended that the Chairperson consider folding separate inputs from DAB principals into the IPA versus including them in a separate DAB blue book. Principals could then concur with positions as represented in the IPA. However, separate inputs are still needed at the Committee Review, and Committee Chairman's director and staff specialists must integrate staff products.

The offsite also recommended that we need to gain experience before we make assessments, and recognize that baselines/exit criteria philosophy and implementation are still evolving. Their biggest concerns were the measures of effectiveness (MOE) and consistency as well as the time needed to work with clarified guidance.

e. BEST PRACTICES: Early drafting (prior to Committee Review) of the IPA should facilitate timely submission following Committee Review.

The Committee staff specialist needs to be aware of programs and their associated IPS documents which are considered by the OSD Committee. Familiarization with content and format requirements for the IPA is recommended prior to attending any Committee Review.

f. **TRAPS:** Lack of preparation and involvement prior to and during the committee review will make it difficult to prepare a useful IPA. (This applies to project office personnel as well as OSD participants.)

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1. **ELEMENT:** A22, TBS 1.4.11.0/1.4.12.1 (IFC Rev. 93-3)

2. **ELEMENT TITLE:** Conduct DAB Milestone I Review

3. **ELEMENT OWNER(S):** Under Secretary of Defense for Acquisition (USD(A))

4. **ELEMENT STAKEHOLDER(S):** DAB Principals & Participants, PEO, and Project Manager

5. **REQUIREMENT:** DOD Directive 5000.49, Defense Acquisition Board, 11 Sep 89. Outlines the responsibilities and membership of the Defense Acquisition Board. DODI 5000.2 Part 2/3 provides requirements that need to be met prior to MS I. Part 13-A provides DAB procedures.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The Defense Acquisition Board (DAB) recommends to the USD(A) whether or not a DAB designated program should be granted demonstration/validation approval.

b. Objective: To identify whether or not a project should proceed into the next appropriate acquisition phase based upon issues, affordability, alternatives, trades, and exit criteria.

7. **DESCRIPTION:** The DAB Milestone Review is the last major review of a project as a part of the review and approval of a project to allow the Milestone Decision Authority to decide whether or not a project should proceed into Phase I, Demonstration and Validation (or other phases as appropriate) of the acquisition process. During this review, the recommendations based upon the Committee Review (A20) as documented in the IPA (A21) are reviewed. The final decision documented in the Acquisition Decision Memorandum is the basis for preparation of the Program Management Directive (PMD) (B25).

The Office of the Secretary of Defense (OSD) Committee Chair sets the tone of the DAB meeting by summarizing the issues and recommendations from the OSD Committee Review. It is then the Project Manager's (PM's) job to convince the DAB that all feasible alternatives have been considered and the proposed study alternative(s) is/are reasonable given the risks associated with the program. Therefore, the PM briefing should focus on issue resolution and risk management and should highlight overall program status. The DAB will expect the following questions to be addressed:

Where are we?
Where are we going?
What risks exist?
Is what we plan to do affordable?
Is the requirement being met?

The PM briefing should, therefore, address all known OSD issues especially those issues addressed at the Committee Review. This forum is not the place for the PM to tell the DAB what a wonderful job he/she is doing. Addressing all special interests of DAB participants will increase the chances of a favorable decision. It is possible to receive program approval without convening the DAB, if there are no OSD issues resulting from the OSD Committee Review.

The scope and formality of the review will depend on the specific project issues. It is important to keep in mind that all projects are different. The proposed program baseline (cost, schedule and performance), proposed program execution status, and proposed program plans should be presented by the PM. Affordability should also be addressed in a program context. In addition, trade-offs considered should be presented. It will be the PM's job to build confidence in the proposed acquisition approach and program plan. For known areas of risk (cost, schedule and performance), the PM should describe how risk will be managed. The DAB will be very interested in risk management. The PM must convince the DAB that all risk has been identified and will be properly managed.

The PM can recommend the alternative(s) to be pursued, but should present all feasible alternatives. It will be the PM's job to convince the DAB principals that the alternative(s) recommended is/are the best choice. The USD(A) (based upon the DAB's recommendations) has approval authority for the actual alternative(s) to be pursued in the following acquisition phase. It is in the best interest of the PM to present proposed exit criteria, even though the USD(A) ultimately approves the exit criteria.

Members of the Board (as defined in DoDD 5000.49) include:

USD(A) - Chair
Vice Chairman, Joint Chiefs of Staff - Vice Chair
Director, Defense Research and Engineering
Service Acquisition Executive, Army
Service Acquisition Executive, Navy
Service Acquisition Executive, Air Force
Director Program Analysis and Evaluation
Comptroller, Department of Defense
Director, Operational Test and Evaluation
Chair of the cognizant DAB Committee, as appropriate

Other participants in the DAB include the DAB Executive Secretary who will attend all DAB meetings, the Director Defense Procurement, Director API, General Counsel, the responsible PM and Program Executive Officer (PEO) and any representatives from DOD Components or other Government Agencies if the Chair determines that the presence of the representative is appropriate because of the specific issues under consideration. For example, the DAB Chair will invite the Under Secretary of Defense for Policy and the Assistant Secretary of Defense (Force Management and Personnel) to participate in DAB activities, whenever those activities affect matters within their respective responsibilities. DAB participation is highly dependent on the DAB Chairman and will vary by who chairs the DAB.

An OSD Action Officer (OSD/AO) is assigned to work each project to go before the DAB, and there are several advisors to the DAB. For example, the Director of the Defense Intelligence Agency (DIA) serves as the principal advisor on intelligence matters. (The responsibilities and authorities of the DAB Chair and Vice Chair are outlined in DOD Directive 5000.49.)

In addition to performing Milestone Reviews, the DAB may also perform other periodic reviews at USD(A) (and occasionally Congressional) direction. It is important to keep in mind that DAB approval is often necessary in order to award contracts, obtain funding, and proceed into the next acquisition phase. Therefore, it is critical that the PM understand the purpose and functioning of the DAB. Further, to be successful at a DAB review requires extensive knowledge of the issues at OSD. Therefore, the PM must work very closely with the OSD/AO as well as the representatives of the DAB principals.

Upon completion of the DAB Milestone Review, an action officer in OSD/USD(A)/API/ASM is responsible for preparing the ADM to reflect the USD(A)'s direction. The ADM is then coordinated through APIand the Committee Chair and then is forwarded to the DAB members for review. DAB members have 24 hours to comment on the ADM after which the ADM is sent to the USD(A) for signature. (By regulation, the ADM is signed by the USD(A) within 48 hours after the DAB review.)

8. ENTRANCE/EXIT CRITERIA:

a. ENTRANCE: This activity will not begin until the appropriate OSD Committee has reviewed the program (Block A20, Conduct Committee Review (OSD)).

b. EXIT: Activity for this effort is complete when the ADM has been approved and distributed.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: Data needed for the DAB review include the Read-Ahead (also called the "Blue Book" -- which includes pertinent project documentation and briefings) and the Integrated Program Assessment (IPA) (which documents the issues and recommendations of the OSD Committee Review) (Write IPA (OSD), A21).

b. Output: The approved ADM. The ADM documents the decisions of the USD(A). It will:

(1) Approve the initiation of a new program and entry into Phase I, Demonstration and Validation. (2) Approve the proposed or modified acquisition strategy (and Concept Baseline for Phase 1).
(3) Establish program-specific exit criteria that must be accomplished during Phase I/modification. (4) Identify affordability constraints derived from the planning, programming, and budgeting system. (Sample ADM for Milestone II decision is attached).

10. KEY REFERENCES:

DODI 5000.2, Defense Acquisition Management Policies and Procedures, February 23, 1991, Parts 3, 11 & 13. Outlines the procedures for DAB review and milestone decision.

11. IMPLEMENTATION TOOLS: The ALLCARS P. C. Lessons Learned Data Base and the Air Force Acquisition Management Data Base managed by ASC/CY, WPAFB OH, DSN 785-1427.

12. PLANNING GUIDANCE:

a. DURATION: See "Description" and "Lessons Learned."

b. CONSTRAINTS: The DAB will not normally convene until the appropriate OSD Committee has reviewed the program, and an ADM cannot be generated until a decision has been made by the USD(A).

c. RESOURCES: Individuals will be needed to interface with the OSD action officers as well as the DAB participants. These individuals should be knowledgeable in the program and the DAB process. The number of individuals required will vary based upon the complexity of the program and the number of OSD issues.

d. LESSONS LEARNED:

(1) While DODI 5000.2 infers that exit criteria will be included in the ADM, it is possible that the project office will be requested to provide exit criteria after issuance of the ADM. As an example, the F-22 project was requested to propose exit criteria no later than 30 days after clarification of exit criteria guidance. This was appropriate for the F-22 effort because they were going into Dem/Val and needed commitments from contractors before they committed to exit criteria. This is evidence, however, that project offices should be prepared to recommend exit criteria and the point in time when it is most appropriate to commit to exit criteria.

(2) DOD Instruction 5000.2 recommends allowing 6 months to get to a DAB review. Many programs have found that twice that time is required, and there is at least one project that took about 3 years.

e. BEST PRACTICES:

(1) The keys to a successful DAB include a "can do" attitude, being proactive, adapting to the process, and remaining flexible. Interact with all key players early and continuously throughout the process. Discourage the introduction of issues which are not pertinent based upon the timing of the project. (For example, if future phases are anticipated, contain discussions to the relevant phase for decision.) Work very closely with the OSD/AOs, but **do not** neglect close interaction with action officers of other DAB principals and key OSD offices. While the OSD/AOs are key in coordinating the DAB preparation activities, they do not necessarily know the issues and hidden agendas of the DAB principals and OSD staff.

(2) Take all OSD/AO concerns/issues seriously, no matter how painful. Mention the concerns/issues in your briefing to the DAB and state your planned commitment to work them (ALLCARS P.C. Lesson 91).

(3) Set up a DAB OSD/AO working group in the Pentagon, with project office , PEO, and selected user participation. This will set the stage for informing each DAB member fully/early in the process (ALLCARS P. C. Lesson 91). Meet at least monthly. A continual interaction with SAF/PEO (or DAC) and OSD staff is imperative.

(4) Effective interaction among the requirements generation, acquisition management and planning, programming and budgeting system is essential for program success.

(5) Use experts to help work issue resolution in real time, ask for advice, coordinate early, and be proactive as much as possible.

(6) Have a contingency for extending/continuing the current program phase if the DAB does not make a prompt decision to proceed.

f. TRAPS: Many DAB participants and OSD agencies have their own issues and hidden agendas which if not addressed could result in surprises and program delays. In addition the DAB may require their approval before RFP release or contract award. This can affect program schedule.

1. **ELEMENT:** A23, TBS 1.4.03.2 (IFC 93-3)

2. **ELEMENT TITLE:** Conduct DAB Planning Meeting (OSD)

3. **ELEMENT OWNER(S):** OSD/AP&PI/ASM

4. **ELEMENT STAKEHOLDER(S):** Operating Command, Product Center, SAF/AQXA, Implementing Command, and PEO/DAC.

5. **REQUIREMENT:** DoDI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 13, Sections A and B, describes the requirements and time frames for the Planning Meeting, the Committee Memo, and the Master Planning Calendar.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of the Defense Acquisition Board (DAB) Planning Meeting is to assess project progress toward satisfying Phase 0 exit criteria and minimum required accomplishments and the readiness of the project to proceed into Phase I. (Detailed information regarding the entire DAB review process and time frames can be found in DoDI 5000.2, Part 13, Section B.)

b. Objectives: Documentation requirements will be confirmed, documentation plans will be assessed, and a detailed master planning calendar set. Issues pertaining to the Phase 0 exit criteria and minimum required accomplishments arising from the assessment of project progress and documentation plans will be identified and documented in the Committee Memo.

7. **DESCRIPTION:**

a. The DAB Milestone Review process begins with a planning meeting held at least 180 days prior to the DAB milestone review. There will be only one Planning Meeting held, depending on whether the acquisition is to go through the Air Force Systems Acquisition Review Council (AFSARC) and DAB or AFSARC only. If the project is going to the AFSARC only, refer to Data Sheet B19, Conduct AFSARC/DAB Planning Meeting (AF). The information required for this meeting is as follows:

(1) Draft Cost Analysis Requirements Document (CARD) (D72)

(2) Proposed Integrated Program Summary (IPS) Outline (D68)

(3) Status of progress toward satisfying exit criteria as defined in the Milestone 0 Acquisition Decision Memorandum (ADM)

(4) Status of progress toward satisfying the minimum required accomplishments as defined in DoDI 5000.2, Part 3, Page 3-8

(5) Any potential issues

(6) Schedule of efforts to be accomplished to get to the DAB

(7) Project status

(8) Status of all documentation needed for a Milestone I decision

b. The planning meeting is chaired by the relevant DAB Committee Chair (or a representative) and will include representatives from each Committee principal and DoD Component. The Project Director may attend if desired by the Committee Chair.

c. As a result of the planning meeting, the Committee staff specialist prepares a Committee Memo for the Committee Chair's signature within 7 days of the meeting. This memorandum goes to the Under Secretary of Defense for Acquisition and to the Air Force Acquisition Executive (AFAE) and highlights the results of the assessment of project progress, and contains a recommendation as to whether or not the Milestone Review should be held as planned. It also identifies issues pertaining to the exit criteria and minimum required accomplishments that Committee members recommended be addressed in the program documentation for Milestone I (D68). Also, as a result of this meeting, the CARD will be forwarded for the Component Cost Analysis effort (B21).

d. The Committee staff specialist also prepares a master planning calendar which can be used as a management tool throughout the Committee and DAB preparation process. This calendar is distributed initially with the Committee Memo and updated and redistributed to OSD and DoD Component personnel throughout the process.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The process of planning for a Committee review is initiated by informal discussions between the Office of the Under Secretary of Defense for Acquisition and Technology and DoD Component personnel and by reference to the long-range schedule published by the DAB Executive Secretary. This schedule identifies the requirement to conduct a DAB review based on project schedule, as modified by actual events and the availability of the participants.

b. Exit: The event is completed upon submission of the Committee Memo.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: Government and Contractor provide project status information (see Para 7.a.)
Draft CARD (D72)
Proposed IPS Outline (D67)

b. Outputs: Committee Memo
Master Planning Calendar

10. KEY REFERENCES:

a. Air Force Acquisition Model (AFAM)

b. PEM/Action Officer Handbook, Apr 92, Paragraph B.4 and subs. Describes the AFSARC/DAB process.

c. Draft AF Sup 1 to DoDI 5000.2, Aug 92, Part 13A, Atch 1, Para 4.a. Further clarifies requirements for AFSARC/DAB Planning Meeting.

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: Allow for 2 weeks preparation time to "test the waters" for current mood of the staff, current trends in direction/questions, and to gather up-to-the-minute current status on the project and known problems. Attendance is about one half day in the Pentagon. Follow-up until the Guidance Memorandum is signed.

b. CONSTRAINTS:

(1) Lack of current information on project status

(2) Project schedule slippages

(3) Generating a review schedule that can be supported by the parties involved

c. RESOURCES: The resources should include a conference room of appropriate size to accommodate the number of attendees for the Planning Meeting, an operating vu-graph machine and a back-up, an individual to flip the charts as the briefer presents his/her charts, and a secretary taking notes to ensure that all comments, questions, changes, etc. are adequately and clearly documented for the resultant memo that will be issued upon completion of the meeting.

d. LESSONS LEARNED:

(1) In the area of DAB requirements, taskings, briefings, and other associated events, it is an absolute necessity to have control and authority over the process. It is imperative that personnel working DAB issues must become the experts and be proactive.

(2) Be sure the purpose of the DAB is clearly defined as to what is required by the Milestone Decision Authority (MDA).

(3) Don't go to the Planning Meeting without an Operational Requirements Document (ORD), documents in draft form, or an approved acquisition strategy.

e. BEST PRACTICES:

(1) Form a team to develop a strategy/plan to obtain a successful DAB resolution. This team should:

(a) Identify requirements for a Milestone DAB

Create and track briefings to support DAB requirements

(b) Resolve/close programmatic issues early

Identify DAB issues and recommend solutions to SPO director

(c) Prepare documentation to include pre-coordination with the OSD staff, the Air Staff, and other offices as appropriate.

Write and track DAB documentation

(2) The F-22 SPO formed their DAB team 16 months prior to their Milestone Decision. Their team had three objectives: (1) Develop a DAB documentation tracking system, (2) Identify and resolve issues/concerns that could affect a successful Milestone DAB decision, and (3) Keep the Program Director informed on all issues. Also, based on the timeline identified in Section 13A of DoD 5000.2, the F-22 SPO developed an internal schedule to track events/milestones leading up to the Milestone DAB decision. This schedule proved to be an invaluable top-level planning tool to satisfy milestone requirements.

(3) Attendance at the Planning Meeting by the Project Director is not required, but is allowed. It is highly desirable for the Project Director to attend because he/she has the knowledge of the full breadth of the program and may be able to answer specific questions which may avoid extensive

written explanations on a "non-issue." Therefore, it is recommended that the Project Director coordinate with appropriate parties to obtain authorization to attend planning meetings.

(4) There is an extremely large volume of point papers, briefing charts and documents to prepare. The Project Director should identify a senior (Lt Col or GS/GM-14), experienced (preferably level III) acquisition manager as the full time OPR for the AFSARC/DAB preparation on his/her staff. That individual should also attend the Planning Meeting, if invited, and establish himself/herself with the appropriate action officer level at SAF and OSD. He/she must proactively interact with those action officers as the AFSARC/DAB process proceeds.

f. **TRAPS:** See Lessons Learned.

1. **ELEMENT:** B1, TBS 0.1.1.2 (IFC 93-3)

2. **ELEMENT TITLE:** Review Air Force Planning Guidance

3. **ELEMENT OWNER(S):** The Secretary of the Air Force (SAF), and the Chief of Staff of the Air Force (CSAF)

4. **ELEMENT STAKEHOLDER(S):** Joint Chiefs of Staff (JCS), the Office of the Secretary of Defense (OSD), Theater Commanders-in-Chief (CINC), the Under Secretary of Defense for Acquisition (USD(A)), Secretary of the Air Force (SAF), the Assistant Secretary of the Air Force for Acquisition (SAF/AQ), the Air Force Director of Operations (AF/XO), Operating Commands and Field Operating Agencies (FOAs).

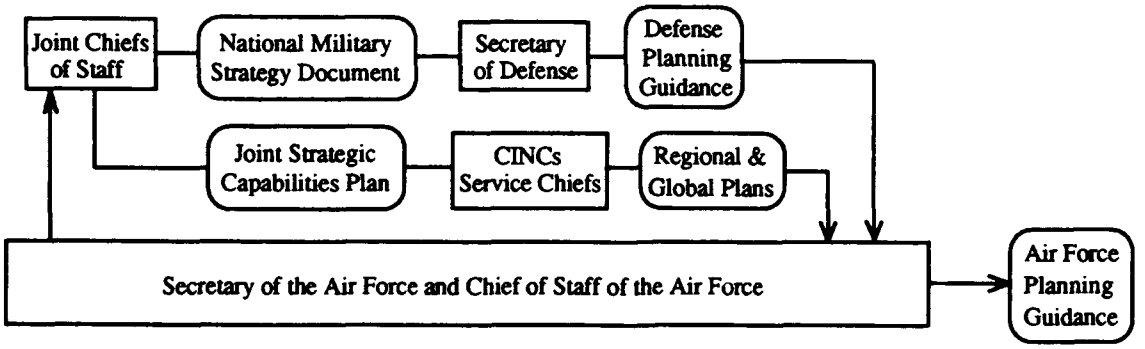
5. **REQUIREMENT:** DODD 5000.1, Part 2, paragraph B.2

6. **PURPOSE/OBJECTIVES:**

a. Purpose: To relate the President's guidance on national security interests and OSD's Defense Planning Guidance (DPG) to Air Force strategies to protect these national interests.

b. Objectives: To formulate Air Force regional plans that would best utilize Air Force resources to protect national interests.

7. **DESCRIPTION:** After OSD and JCS receive the President's National Security Strategy of the United States, they produce the National Military Strategy Document (NMSD), the Joint Strategic Capabilities Plan (JSCP), and the Defense Planning Guidance (DPG) as discussed in the National Defense Planning process (A1). The Air Force initially gets into the planning process when they hold a strategy review that ensures the capabilities and attributes of air power are incorporated into the various joint strategy documents, like those mentioned above. This review addresses key Air Staff and CINC level issues in preparation for the development of the Air Force executive guidance provided by the SAF and CSAF, addressing strategic environment, national security objectives, defense policy, national military objectives, and planning priorities. The Air Force executive guidance is used to influence the Joint Strategic Capabilities Plan and serve as the Air Force input to other joint strategic planning system documents. This planning process eventually results in the publication of the Air Force Planning Guidance (AFPG) in the summer of the even-numbered years, which includes a summary of the Air Force executive guidance, fiscally-constrained force structure levels and assessments of forces. The AFPG provides the link between DPG planning priorities, fiscal reality and potential Air Force programs. The AFPG provides the strategic inputs to the Mission Area Assessment "strategy-to-task" process (C1) through the Operating Command's annual review of the mission area plans (C4) and their associated Concept of Operations (C2).



8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Receipt of the National Military Strategy Document, Joint Strategic Capabilities Plan and Defense Planning Guidance.

b. Exit: Publication of the Air Force Planning Guidance.

9. KEY INPUTS/OUTPUTS:

a. Inputs: National Military Strategy Document (A1)
Joint Strategic Capabilities Plan (A1)
Defense Planning Guidance (A1)

b. Output: Air Force Planning Guidance

10. KEY REFERENCES: Air Force Instruction 10-601, paragraph 1.1.2

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: The Defense Planning Guidance is published in late fall of odd-numbered years. The Air Force Planning Guidance is then published following the DPG in the summer of the even-numbered years. Draft guidance is supplied in the off-years for planning purposes.

b. CONSTRAINTS: None identified.

c. RESOURCES: AFMC/XP and AFMC/XR are on the distribution list for these documents.

d. LESSONS LEARNED: None identified.

e. BEST PRACTICES: None identified.

f. TRAPS: None identified.

1. **ELEMENT:** B2, TBS 0.1.6.2.2 (IFC 93-3)

2. **ELEMENT TITLE:** Threat Environment Descriptions (TEDS)

3. **ELEMENT OWNER(S):** HQ USAF/IN

4. **ELEMENT STAKEHOLDER(S):** NAIC/TIA, HQ AFISA/INA, DIA/DTI-AC, USAF/XOR, Product Center Director of Intelligence, SAF/AQ, Operating Command, and Implementing Command

5. **REQUIREMENT:**

a. DoD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 4. This regulation contains policies and procedures for production, review, and validation of intelligence support information.

b. AFR 200-13, Intelligence Support to the Requirements and Acquisition Processes, 1 Jul 90, Part 2. This regulation states the Air Force policy and requirements for threat definition.

c. AFSCR 200-3, Threat Support for Systems Acquisition, 5 Apr 85, Attachment 1 (TEDs). This regulation contains specific guidance on preparing threat assessment documents.

6. **PURPOSE/OBJECTIVE(S):**

a. Purpose: The TEDs provide a reference with sufficiently detailed threat data in a mission area to support planners (C3) and program or research offices. This intelligence data may be used for planning, system engineering, survivability and vulnerability analysis, threat simulation for test and evaluation, OPSEC and COMSEC decisions, and technology exploitation.

b. Objectives: To provide sufficient detailed threat data to assess the strengths and weaknesses of current/future military force used by the Air Force to aid in identifying study inputs (C5), to support planners in developing the Mission Needs Analysis (MNA) (C3) and to support the Operating Command in writing the threat portion of the Mission Need Statement (MNS) (C12).

7. **DESCRIPTION:**

a. TEDs are baselined threat documents to support all planning, programming, budgeting, development, test and evaluation activities, and are associated with U.S. Air Force mission areas and other specialized tasks. MNS drafters (C12) are supposed to include a brief description of threat in the MNS using Defense Intelligence Agency (DIA) and HQ USAF/IN approved threat information (e.g., TEDs).

b. TEDs support System Threat Assessment Reports (STARs) as complementary documents by addressing an entire Air Force mission area, thus providing a breadth and scope not found in STARs (D50). TEDs may also serve as an initial basis from which to develop a STAR. All related systems in a mission area are supported by a single TED. A minimum number of TED documents will be published consistent with AFMC requirements.

c. National Air Intelligence Center (NAIC) produces the TEDs for the Air Force and DoD. TEDs are produced using key data extracted from approved intelligence community threat information (A2) and publications such as the Defense Intelligence Projections for Planning, Defense Intelligence Assessments and Threat Environment Projections (TEPs). More detailed or current intelligence data (not yet incorporated in Defense Intelligence Agency (DIA) and Air Force-approved documents) may also be used.

d. TEDs are tailored as required for each mission, but as much commonality as possible is kept.

e. The principal volumes of the TEDs describe the threat environment by time period (present up to 20 years) and Region of the World. Weather and terrain are considered to determine the effect on the threat elements.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: This activity begins when validated threat information is available to support the development of the TEDs.

b. Exit: This activity is complete when the DIA validates the TEDs for publication and distribution.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: Approved intelligence publications such as Defense Intelligence Projections for Planning, Defense Intelligence Assessments, and Threat Environment Projection (TEPs).

b. Outputs:

(1) DIA validated TEDs.

(2) Assessments of the strengths and weaknesses of current/future military force used by the Air Force to aid in identifying study inputs (C5).

(3) Detailed threat data in a mission area to support planners for the MNA (C3).

(4) Threat descriptions used by the Operating Command to write the threat portion of the MNS (C12).

(5) Initial basis for developing STA(R)s (D50).

10. KEY REFERENCES: Air Force Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, paragraphs, 1.1.4, 1.1.6, and 1.1.7. This regulation addresses MNA, evolutionary requirements definition, and threat assessment.

11. IMPLEMENTATION TOOLS: The threat and intelligence data base which consists of validated STARs, Threat Assessment Reports (TARs), Threat Planning Documents (TPDs), TEDs, approved Science and Technology (S&T) intelligence reports, and other intelligence data, such as translations of foreign research reports or books.

12. PLANNING GUIDANCE:

a. **DURATION:** Typically, it requires approximately 12 months for NAIC to produce the TEDs. NAIC publishes the TEDs biennially, and maintains currency through page changes. NAIC will ask HQ USAF/INE for approval of page changes to existing TEDs within a reasonable time, consistent with the complexity of each change. Ten to 15 days for minor changes and 30-45 days for complete reissues are typical.

b. CONSTRAINTS: Since TEDS are used to support the MNS development, current validated threat data is a necessity.

c. RESOURCES:

(1) NAIC/TIA produces the TEDs for ASC. Each TED has a single author. However, they have help from many people and organizations. For example, HQ USAF/INE will approve new or republished TEDs and page changes to existing TEDs. HQ AFMC/INA will review the TED change in parallel with HQ USAF/INE and comment to them. The DIA will validate the TEDs (A5).

(2) Copies of the TEDs may be obtained from the Product Center Director of Intelligence (DI), ASC/NAIC/TIA for ASC.

(3) There are no resources from the project team needed to write the TEDs. However, the project team may designate a point of contact to interface with the Product Center DI to keep up to date on threat issues.

d. LESSONS LEARNED: Early and continued collaboration among the DIA and the DoD Components will expedite the development, review, and validation of threat documentation and help to ensure the availability of validated threat information to all concerned in a timely manner.

e. BEST PRACTICES:

(1) Project teams should strive for a mutual understanding of the threat process, early involvement, and tailored threat support.

(2) When extraordinary threat support or documentation is required, the project manager allocates resources to the intelligence producer as necessary.

(3) The formation of a Threat Working Group (TWG) is an effective means of providing threat support to any project. It gives advice, guidance, and recommendations to the project team on effective responses to the threat environment. The TWG should include representatives from the project office, the using commands, and the appropriate Director of Intelligence (DI). Normally, this group is not formed until after MS 0. However, starting this function upfront prior to MS 0 should be considered. Early involvement establishs clear lines of communication and aids in acquiring timely threat support.

(4) For more specific information on TEDs contact the Product Center DI (ASC/NAIC/TIA for ASC, DSN 785-4285). HQ USAF AFISA/INA, DSN 225-7577, is the Air Force Point of Contact.

f. TRAPS: Failure of the project team to evaluate threat data sources regularly will result in information for the MNS that is neither current nor accurate. This will impact the validity of the MNS.

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1. **ELEMENT:** B5, TBS 0.1.9.8.2 (IFC 93-3)

2. **ELEMENT TITLE:** Submit Initial POM/BES Input

3. **ELEMENT OWNER:** Secretary of the Air Force (SECAF)

4. **ELEMENT STAKEHOLDER(S):** CSAF, AF/PE, SAF/FM, AF/XO, Operating Command, and Project Manager.

5. **REQUIREMENT:** DoD Directive 7045.14, The Planning, Programming, and Budget System (PPBS), 22 May 1984. Describes OSD budget process.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this activity is to create approved Air Force financial planning documentation. For a specific project office, the Program Objective Memorandum (POM), and (to a lesser extent) the Budget Estimate Submission (BES), are the primary opportunities for a project office to submit project/program requirements into approved Air Force planning documentation.

b. Objectives: The objective is for the Air Force to develop a comprehensive and integrated plan which supports the Defense Planning Guidance (A1). At the project level, it should be the objective of the project office to get the program financial requirements approved at the earliest opportunity to prevent schedule delays due to funding availability.

7. **DESCRIPTION:**

a. The development of the Air Force Program Objective Memorandum (POM) is the process by which all resources required to execute OSD Defense Planning Guidance (DPG) are documented and validated. The POM is used to update the planning for the 6 years contained in the Future Year Defense Program (FYDP). After OSD adjustments are made to the POM, the Air Force is allowed to update and reprice the projects which were approved . This is documented in the Budget Estimate Submission (BES), which emphasizes the first 2 years of the FYDP, and converts the project oriented format of the POM into the appropriation categories. At this phase of an acquisition, the project may not need much funding, but if the project could require funding during any of the years included in the POM, it is essential to submit a POM input.

b. The FYDP is the official DoD database and document which is a compilation of the total resources (forces, manpower, and dollars) programmed for DoD, arranged by Major Force Program (MFP) and appropriation. The FYDP projects 6 years for all data except forces, which extend an additional 3 years. The POM submissions are the primary opportunity for a project office to present project resource requirements for inclusion into this approved planning document (C9 and D77).

c. National security policy, as documented in the draft DPG (A1), provides guidance to the Services for POM development around August in the odd-numbered years. The final DPG should arrive in November or December. This provides the Secretary of Defense (SECDEF) fiscally-constrained guidance on policy, strategy, force planning, and resource planning. During this same time frame, OSD provides the POM documentation requirements, the POM Preparation Instructions (PPI) to the Services. Based on this information, all Major Commands, Field Operating Agencies, and Direct Reporting Units provide POM inputs to the Air Staff. The subsequent Air Staff activities are the subject of this element.

d. The current structure for the Air Force corporate review/screening process was established in 1991, with the creation of eight Resource Allocation Teams (RATs). The RATs are the focal points for resource issues for the following functional areas: Nuclear Deterrence, Power Projection, Global Mobility, Space and CCCI, Materiel Support, Personnel Support, Classified Programs, and National Foreign Intelligence Programs. The HQ USAF Directorate of Programs and Evaluation (AF/PE) is the

office of primary responsibility for the Resource Allocation Process. Another key player in the POM process is the Program Element Monitor (PEM), who is the overall Air Staff focal point for the projects within his Program Element - the PEM is responsible for addressing all issues concerning his projects. In short, since every Program Element (PE) is assigned to a RAT, the PEM must interface with that team to ensure his PE is properly supported.

e. In the fall of the odd-numbered years, the Major Commands provide their POM proposals to HQ USAF. These include a prioritized list of disconnects and any "new starts" that are proposed. The RATs convene, and, with the support of the functional staffs, SAF/FM and AF/PE, the teams review and evaluate the Major Command inputs. Based on the POM inputs, the RATs generate project options for presentation to the Air Force Council, CSAF, and SECAF from late January until early March (of the even-numbered years). During this same period, the participants update the POMs to reflect any Congressional budget activities, the President's Budget submission to Congress, OSD budget exercises or fiscal guidance, and new OSD Defense Planning Guidance (A1) or Air Force Planning Guidance (B1).

f. At the completion of the POM deliberations, SAF/FM verifies the pricing of the approved options, and the final Air Force POM is documented and coordinated. The POM is submitted to OSD on 1 April of even numbered years (A4). At this time, SAF/FM updates the FYDP to reflect the Air Force approved positions. At the OSD level, any SECDEF decisions to adjust the service POMs are recorded in Program Decision Memorandums (PDMs).

g. While OSD is holding the Program Reviews, the Air Force conducts a Summer Review, which consists of an evaluation of the pricing and execution of the Air Force investment accounts (research and development, procurement, and military construction). Program and financial information from this review, plus any PDMs issued by OSD, and any necessary repricing of elements in the databases, are used to develop the Air Force BES, which is submitted to OSD. After OSD receipt of the Services' BES packages, a joint Assistant Secretary of Defense (Comptroller)/ Office of Management and Budget (OMB) Budget Review is conducted to ensure the projects and dollars are correctly matched. The final decisions are documented in Program Budget Decisions (PBDs) and Defense Management Report Decisions (DMRDs). The Services are allowed a final opportunity to take exception to the PBDs/DMRDs in the Major Budget Issues cycle, and then the DEPSECDEF signs the final PBDs/DMRDs. This process should be complete in December, with the submission of the Defense Budget to OMB.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The POM activities in the field start in the spring of the odd-numbered years, when the Secretariat/Air Staff provides each Major Command with the dollar and resource baselines each should use to derive the Command's POM packages. In the summer, AF/PE publishes the POM Preparation Instructions, which outlines detailed instructions and submission schedules. In the fall, the Command POM inputs are submitted to HQ USAF. As for the BES, SAF/PMB issues instructions that usually result in a so-called Summer Review. That forms the basis for the BES.

b. Exit: The POM activity is completed with the delivery of the Air Force POM (in both hard copy and computer file) to OSD at the first of April in the even-numbered years. The AF BES is completed with submission to OSD in September.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The necessary information is contained in the Defense Planning Guidance, Air Force Planning Guidance, the FYDP and the Major Command POM baselines, and the POM Planning Instructions (A1, B1, C9, and D77).

b. Outputs: The output is the delivery of the Air Force approved documentation to OSD.

10. KEY REFERENCES:

a. DoDI 7045.7, Implementation of the Planning, Programming, and Budgeting System (PPBS), 23 May 1984. Describes procedures for OSD budget process.

b. AFP 172-4, The Air Force Budget Process, Oct 87. Describes the Air Force budget process.

11. IMPLEMENTATION TOOLS: "The PPBS Primer," 7th Edition, Jan 93. This document, while still "draft", is published by the Directorate of Programs and Evaluation, Department of the Air Force, and provides a valuable description of the current PPBS process. This is one of the few documents that describes the current process, and it does so in detail. Further, it defines the activity schedule for the development of the FY96 POM.

12. PLANNING GUIDANCE:

a. DURATION: After receipt of the Major Command POM inputs in the fall, Air Force works POM iterations through the following March. The BES activities occur from August through mid-September, when the approved documentation is delivered to OSD.

b. CONSTRAINTS: The primary constraints to this activity are the resource limitations placed on the Air Force by OSD, and the schedule limitations on management reviews inherent in the budget timetable. A second constraint is limited data (being pre-Milestone 0) from which to submit an input that could cover the next 8 years. Yet if an input is not made, there may not be adequate funding in the future if a project does proceed.

c. RESOURCES: The POM deliberations in the Air Staff require intensive activity by the Resource Allocation Teams, AF/PE, SAF/FM, and the functional staffs to reconcile planning objectives and resources. The BES generation is also a major exercise, but is more limited, since it represents a financial repackaging of the approved Air Force program.

d. LESSONS LEARNED: During the Air Staff POM deliberations and reviews, it is important that the project managers keep in close contact with Major Command and the project representative(s) in AF/XO (and SAF/AQ, if someone has been identified). This is important to help resolve issues that may arise, and to ensure that they fully understand all the pertinent aspects of the project, and can defend the projected resource requirements. Also, development of the POM is a comprehensive and complex task, and the information requested can be expected to change with every submission. Therefore, the POM preparer in the project office needs to ensure that (s)he is not only in compliance with the formal tasking and the local budget staff instructions, but also satisfies the information and documentation needs of the Air Staff project representative.

e. BEST PRACTICES: After submission of the POM package, the project office should posture itself to be able to respond effectively to programmatic questions, and to be able to generate quantitative answers to Air Staff requests to develop and price out program variations to the POM submission. The capability to generate this "what-if" information in a timely (and quality) manner is important, since the reconciliations and rankings to be performed by the Resource Allocation Teams may require modifications to the Major Command POM requests programs in terms of funding levels, quantities, schedules, or other programmatic aspects. If a project office is unable to provide the necessary information, or not in time to support the decision makers, the project may not supported, or approved with insufficient funding levels.

f. TRAPS: If the POM is the first for the project, the submission will be considered a "New Start," and identified as such. There may be additional documentation requirements and a higher level of review for these projects, since there is not an existing funding line. Due to this, the PEM, with project office support, must be especially prepared to defend potential future funding requirements.

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1. **ELEMENT:** B6, TBS 0.2.2.1 (IFC 93-3)

2. **ELEMENT TITLE:** Approve MNS Threat (USAF/IN)

3. **ELEMENT OWNER(S):** AF/IN

4. **ELEMENT STAKEHOLDER(S):** AFISA/INA, HQ USAF/INX, AFIC, HQ USAF/ICO, Product Center Director of Intelligence (DI), DIA/DTI-AC, SAF/AQX, HQ USAF/XOR, and Operating Command, Implementing Command.

5. **REQUIREMENT:**

a. DoD Directive 5000.1, Defense Acquisition, 23 Feb 91, Part 1. This regulation addresses identifying and processing mission needs.

b. DoD Instruction 5000.2, Defense Acqusition Management Policies and Procedures, 23 Feb 91, Part 4. This regulation contains policies and procedures for production, review, and validation of intelligence information support.

c. AF Regulation 200-13, Intelligence Support to the Requirements and Acquisition Processes, 20 Jul 92. This regulation states the Air Force policy for identifying and acquiring intelligence to support the Air Force requirements and acquisition processes.

6. **PURPOSE/OBJECTIVE(S):**

a. Purpose: To review all Mission Need Statements (MNS) to ensure consistency with intelligence estimates and the intelligence infrastructure base.

b. Objective: To ensure the threat used to support the MNS is valid and approved.

7. **DESCRIPTION:**

a. Prior to Milestone 0, the intelligence office of the Operating Command conducts a strategy-to-task analysis to determine whether the existing intelligence infrastructure is sufficient to meet the given need. Intelligence infrastructure components include data flow and data bases; target materials; mapping, charting and geodesy; system interfaces; security classification; and personnel and training. The Operating Command's Intelligence Counterpart Officer (ICO), in concert with Air Force Intelligence Command and the Operating and Implementing Commands' Requirements staffs, determines the operational tasks associated with a mission need. Linking operational tasks to required intelligence subfunctions and, in turn, intelligence programs, the ICO determines the infrastructure requirements and shortfalls for a given need. At the Air Staff, the HQ USAF ICO, assigned by HQ USAF/INX, reviews the MNS (C12) and validates the intelligence infrastructure base for a given need, based on the strategy-to-task analysis (B7).

b. Prior to an AF Systems Acquisition Review Council (AFSARC), a concise, issue-oriented memorandum is prepared by HQ AFISA for HQ USAF/IN signature. The memorandum is provided to the AFSARC Secretary and SAF/AQ staff at least 5 days prior to the AFSARC. It is distributed to AFSARC principals to address significant threat issues and to represent the HQ USAF/IN position regarding threat to the project (B9).

c. The Defense Intelligence Agency (DIA) further validates the threat in the MNS and prepares the intelligence report in support of each Defense Acquisition Board (DAB) Milestone Decision Review (A5).

8. ENTRANCE/EXIT CRITERIA

a. Entrance: The criteria for starting this element is the completion of C12. The threat to be countered, contained in the MNS, will be approved by HQ USAF/IN.

b. Exit: The exit criteria is HQ USAF/IN approval of the threat content in the MNS.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The threat analyses contained in the MNS which discusses the threat to be countered as well as the projected threat environment is the key input.

b. Outputs: The key outputs are a valid and approved threat section of the MNS and the memorandum prepared for the AFSARC.

10. KEY REFERENCES:

a. AF Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, Paragraph 1.1.7. This regulation contains information on threat assessment.

b. DIA Regulation 55-3, Intelligence Support for Defense Acquisition Programs, 30 Mar 92, Paragraph 10. This regulation contains guidance for threat preparation.

11. IMPLEMENTATION TOOLS: The Air Force uses threat models and scenarios identified by the Directors of Intelligence (DIs) as potential candidates for validation as standard threat evaluation tools. HQ AFMC/IN maintains an intelligence data base to support local AFMC requirements and informs local users of new intelligence that may apply to their programs.

12. PLANNING GUIDANCE:

a. DURATION: The memorandum prepared by AFISA/INA is typically two pages long and takes several days to prepare. It is coordinated with the intelligence staffs of the Operating and Implementing Commands which takes approximately 2 to 3 weeks. The memorandum is provided to the AFSARC Secretary and SAF/AQ staff at least 5 days prior to the AFSARC.

b. CONSTRAINTS:

(1) Restrictions regarding existing intelligence infrastructure support that may have an impact on satisfying the need.
(2) Limitations on the availability of data flow and data bases.
(3) Limitations on the availability of project staff.
(4) Restrictions on time and money needed to get the job done.
(5) Restrictions on availability of equipment and facilities needed to perform required tasks.

c. RESOURCES:

(1) AFISA receives the MNS and writes the memorandum. They use two to three project teams for threat support. For example, AFISA/INAA is presently divided into two teams. One for Space and Electronic Combat Systems and one for Weapons and Aircraft. Out of those teams, one threat support program manager handles three to four specific programs with back up personnel as needed.

(2) An action officer from the project team should be appointed to interface with the Air Force Intelligence community through the Product Center DI. This is not a full time assignment.

d. LESSONS LEARNED:

(1) Early and continued collaboration among the intelligence community and the Operating and Implementing Commands will expedite the development, review, approval, and validation of threat documentation and help to ensure the availability of valid threat information in a timely manner.

(2) The project team should allocate resources to the intelligence producer as necessary throughout the acquisition process.

(3) The formation of a Threat Working Group (TWG) is an effective means of providing threat support to any project. It gives advice, guidance, and recommendations to the project team on effective responses to the threat environment. The TWG should include representatives from the project office, the using commands, and the appropriate Director of Intelligence (DI). Normally, this group is not formed until after MS 0. However, starting this group early should be considered. Early involvement establishes clear lines of communication and aids the project team in acquiring timely threat information.

e. BEST PRACTICES:

(1) The project team should participate with the intelligence community in the development and implementation of long-range forecasting methodologies and threat integration techniques. The Product Center (DI) (ASC/NAIC/TIA, DSN 785-4285, for ASC) is a good starting point.

(2) For additional information concerning HQ/IN threat approval, HQ AFISA/INAA, DSN 225-7577, 1700 Air Force Pentagon, Washington, DC 20330-1700.

f. TRAPS: Failure to maintain consistency when producing the various threat documents for a particular program will lead to misunderstanding and confusion.

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1. **ELEMENT:** B7, TBS 0.2.2.3 (IFC 93-3)

2. **ELEMENT TITLE:** Staff and Coordinate MNS (Air Staff)

3. **ELEMENT OWNER:** AF/XOR

4. **ELEMENT STAKEHOLDER(S):** Operating Command, AFMC, AFOTEC, Participating Commands, and AF/XOR staff.

5. **REQUIREMENT:** AFPD 10-6, Mission Needs and Operational Requirements, 19 Jan 93, Attachment 3, identifies Mission Need Statement (MNS) approval requirements. AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, Attachment 4, identifies MNS staffing and coordination procedures.

6. **PURPOSE/OBJECTIVES:**

   a. Purpose: Staff and coordinate the Mission Need Statement (MNS) at the Air Staff.

   b. Objective: Obtain Air Force Chief of Staff (CSAF) approval.

7. **DESCRIPTION:** The overall MNS staffing and coordination process begins at the operating command where the MNS is drafted (C12), continues with Air Staff coordination (B7), JROC Service, CINC, and Joint Staff coordination (ACAT I) (A6), and ends with either CSAF approval (ACAT II-IV) or validation and approval by the JROC (ACAT I) (A8). The Air Staff and JROC will use the latest threat information to ensure the threat used to develop the MNS is valid (B6 and A5, respectively). The JROC also will review ACAT I MNS for assignment of joint potential designator (i.e., potential for joint applicability). For ACAT II-IV MNS, validation and approval are done by the Air Force with the Operating Command as the validation authority and CSAF as the approval authority (JROC assistance may be requested to resolve lead Service issues). This data sheet addresses the Air Staff portion of the MNS staffing and coordination process.

(Note: This data sheet assumes a single Operating Command is the need originator. An Air Force MNS can also originate from other sources, including CINCs, the Joint Staff, HQ USAF, unified or specified commands, or other Federal Agencies (i.e., FAA or NASA). See AFI 10-601, paragraph 1.3, for more information.)

The Air Staff focal point for MNS staffing and coordination is AF/XOR. AF/XOR receives the draft "for comment" MNS prior to Operating Command final approval. AF/XOR distributes the draft "for comment" MNS to appropriate Air Staff and Secretariat offices, collects comments, and returns them to the Operating Command OPR for incorporation. For ACAT I programs, AF/XOR concurrently submits the "for comment" MNS to the JROC Secretariat for Colonel-level Service, CINC, and Joint Staff review.

After Operating Command validation, the MNS is ready for the final "coordination" phase. The MNS is sent to AF/XOR for final Air Staff coordination, then CSAF approval. For ACAT I programs, AF/XOR concurrently submits the final MNS to the JROC Secretariat for 2-star level Service, CINC, and Joint Staff review.

An assessment of Joint Service potential, or harmonization, is part of the validation process. All MNS are forwarded to the other Services for an assessment of Joint potential. AF/XOR ensures a Joint Potential Designator (JPD) is assigned to each MNS, to describe the expected level of Joint Service involvement. A MNS will be classified as either Independent (no involvement), Joint Interest (potential use or interface by another Service), or Joint (potential for Joint program management).

Following CSAF approval, the MNS is forwarded to the JROC (ACAT I) or the Milestone Decision Authority (MDA) (ACAT II-IV) (B9).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: When AF/XOR receives the "for comment" MNS from the operating command.

b. Exit: When the MNS is approved by CSAF.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The "for comment" MNS from the operating command (C13). Current threat information from AF/IN (B6), validated by DIA (ACAT I) (A5), to ensure the threat used to develop the MNS will remain valid up to CSAF approval.

b. Outputs: A CSAF approved MNS that is forwarded to the JROC (ACAT I), or notification to the MDA that the MNS has been approved or disapproved (ACAT II-IV).

10. KEY REFERENCES: See Requirement, paragraph 5.

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: Typical (optimistic) staffing and coordination schedule for Air Staff:

Draft "for comment" phase:
45 days (review)
15 days (operating MAJCOM work comments)

Final "coordination" phase:
45 days (coordination and CSAF approval)

Note: Entire process (from Air Staff receipt of draft MNS, through MAJCOM working comments, to CSAF approval) could take several months.

b. CONSTRAINTS: None identified.

c. RESOURCES: An OPR will be required at AF/XOR (maybe more than one depending on size and visibility of the program) to conduct the staffing and coordination process. The AF/XOR OPR may be handling between 10 and 40 MNS at a time. An OPR will be required from each Air Staff organization receiving the MNS from AF/XOR for comment and coordination.

d. LESSONS LEARNED: This activity is handled by the AF/XOR OPR and the operating MAJCOM OPR. Product Center involvement normally would have occurred prior to staffing and coordination, hopefully in support of the mission need analysis and development of the MNS. If major issues arise during this activity, however, the operating MAJCOM OPR and AF/XOR should notify major stakeholders (i.e., Product Center) and plan for resolution as a team.

Reviewers should take the time to ensure the MNS is a quality document: (1) Pay special attention to whether the MNS is properly focused on needs, not solutions. (2) Confirm that the need is real, relates to Defense Planning Guidance, and is based on the current threat. (3) Challenge system specific *requirements or unsubstantiated required capability dates. (4) Ensure all constraints have been* identified. (5) Ensure the MNS does not evaluate potential alternatives.

Adequate slack time should be built into the schedule, especially for potentially controversial programs, to ensure a quality review can be done. With all the coordination and working of comments, there are bound to be obstacles that require extraordinary effort to overcome, such as unforeseen issues, turf battles, and other differences of opinion. This is especially true for Joint needs.

e. **BEST PRACTICES:** The Product Center OPR should stand by and be prepared to help the operating MAJCOM OPR work any comments received during staffing and coordination.

Product Center and operating MAJCOM OPRs should be "working the party" (talking with important Air Staff offices such as AF/IN, SAF/AQ, and AF/XO) before actual coordination.

f. **TRAPS:** Not building enough time into the staffing and coordination schedule. Not working up front with organizations whose coordination is needed most.

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1. ELEMENT: B8, TBS 1.1.1.5.2 (IFC 93-3)

2. ELEMENT TITLE: Update POM/BES Input

3. ELEMENT OWNER: Secretary of the Air Force (SECAF)

4. ELEMENT STAKEHOLDER(S): CSAF, AF/PE, SAF/FM, AF/XO, Operating Command, Project Manager, and PEO.

5. REQUIREMENT: DoD Directive 7045.14, The Planning, Programming, and Budget System (PPBS), 22 May 1984. Describes OSD budget process.

6. PURPOSE/OBJECTIVES:

a. Purpose: To ensure that all funding is available to support execution of the planned project. Initial Program Objective Memorandum (POM) wedges should be submitted or updated at the earliest opportunity.

b. Objectives: To prevent possible schedule delays later due to inadequate funding.

7. DESCRIPTION:

a. The development of the Air Force Program Objective Memorandum (POM) is the process by which all resources required to execute OSD Defense Planning Guidance (DPG) are documented and validated. The POM is used to update the planning for the 6 years contained in the Future Year Defense Program (FYDP). After OSD adjustments are made to the POM, the Air Force is allowed to update and reprice the projects which were approved . This is documented in the Budget Estimate Submission (BES), which emphasizes the first 2 years of the FYDP, and converts the project oriented format of the POM into the appropriation categories. At this phase of an acquisition, the project may not need much funding, but if the project could require funding during any of the years included in the POM, it is essential to submit a POM input.

b. The FYDP is the official DoD data base and document which is a compilation of the total resources (forces, manpower, and dollars) programmed for DoD, arranged by Major Force Program (MFP) and appropriation. The FYDP projects 6 years for all data except forces, which extend an additional 3 years. The POM submissions are the primary opportunity for a project office to present project resource requirements for inclusion into this approved planning document (D20A, C14, and C15).

c. National security policy, as documented in the draft DPG (A1), provides guidance to the Services for POM development around August in the odd-numbered years. The final DPG should arrive in November or December. This provides the Secretary of Defense's (SECDEF's) fiscally-constrained guidance on policy, strategy, force planning, and resource planning. During this same time frame, OSD provides the POM documentation requirements, the POM Preparation Instructions (PPI), to the Services. Based on this information, all Operating Commands, Field Operating Agencies, and Direct Reporting Units provide POM inputs to the Air Staff. The subsequent Air Staff activities are the subject of this element.

d. The current structure for the Air Force corporate review/screening process was established in 1991, with the creation of eight Resource Allocation Teams (RATs). The RATs are the focal points for resource issues for the following functional areas: Nuclear Deterrence, Power Projection, Global Mobility, Space and CCCI, Materiel Support, Personnel Support, Classified Programs, and National Foreign Intelligence Programs. The HQ USAF Directorate of Programs and Evaluation (AF/PE) is the office of primary responsibility for the Resource Allocation Process. Another key player in the POM process is the Program Element Monitor (PEM), who is the overall Air Staff focal point for the projects

within his Program Element - the PEM is responsible for addressing all issues concerning his projects. In short, since every Program Element (PE) is assigned to a RAT, the PEM must interface with that team to ensure his PE is properly supported.

e. In the fall of the odd-numbered years, the Operating Commands provide their POM proposals to HQ USAF. These include a prioritized list of disconnects and any "new starts" that are proposed. The RATs convene, and, with the support of the functional staffs, SAF/FM and AF/PE, the teams review and evaluate the Operating Command inputs. Based on the POM inputs, the RATs generate project options for presentation to the Air Force Council, CSAF, and SECAF from late January until early March (of the even-numbered years). During this same period, the participants update the POMs to reflect any Congressional budget activities, the President's Budget submission to Congress, OSD budget exercises or fiscal guidance, and new OSD Defense Planning Guidance (A1) or Air Force Planning Guidance (B1).

f. At the completion of the POM deliberations, SAF/FM verifies the pricing of the approved options, and the final Air Force POM is documented and coordinated. The POM is submitted to OSD on 1 April of even numbered years (A7). At this time, SAF/FM updates the FYDP to reflect the Air Force approved positions. At the OSD level, any SECDEF decisions to adjust the Service POMs are recorded in Program Decision Memorandums (PDMs).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The POM activities in the field start in the spring of the odd-numbered years, when the Secretariat/Air Staff provides each Operating Command with the dollar and resource baselines each should use to derive the Operating Command POM packages. In the summer, AF/PE publishes the POM Preparation Instructions, which outlines detailed instructions and submission schedules. In the fall, the Operating Command POM inputs are submitted to HQ USAF.

b. Exit: The activity is completed with the delivery of the Air Force POM (in both hard copy and computer file) to OSD at the first of April in the even-numbered years.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The necessary information is contained in the Defense Planning Guidance, Air Force Planning Guidance, the FYDP and the Operating Command POM baselines, and the POM Planning Instructions (D20A, C14, C15, A1, and B1).

b. Outputs: The output is the delivery of the Air Force approved documentation to OSD.

10. KEY REFERENCES:

DoDI 7045.7, Implementation of the Planning, Programming, and Budgeting System (PPBS), 23 May 1984. Describes procedures for OSD budget process.

AFP 172-4, The Air Force Budget Process, Oct 87.

11. IMPLEMENTATION TOOLS: "The PPBS Primer," 7th Edition, Jan 93. This document, while still "draft," is published by the Directorate of Programs and Evaluation, Department of the Air Force, and provides a valuable description of the current PPBS process. This is one of the few documents that describes the current process, and it does so in detail. Further, it defines the activity schedule for the development of the FY96 POM.

12. PLANNING GUIDANCE:

a. DURATION: After receipt of the Operating Command POM inputs in the fall, Air Force works POM iterations through the following March.

b. CONSTRAINTS: The primary constraints to this activity are the resource limitations placed on the Air Force by OSD, and the schedule limitations on management reviews inherent in the budget timetable. A second constraint is limited data (being pre-Milestone 0) from which to submit an input that could cover the next 8 years. Yet if an input is not made, there may not be adequate funding in the future if a project does proceed.

c. RESOURCES: The POM deliberations in the Air Staff require intensive activity by the Resource Allocation Teams, AF/PE, SAF/FM, and the functional staffs to reconcile planning objectives and resources.

d. LESSONS LEARNED: During the Air Staff POM deliberations and reviews, it is important that the project managers keep in close contact with Operating Command and the project representative(s) in AF/XO (and AF/AQ, if someone has been identified). This is important to help resolve issues that may arise, and to ensure that they fully understand all the pertinent aspects of the project, and can defend the projected resource requirements. Also, development of the POM is a comprehensive and complex task, and the information requested can be expected to change with every submission. Therefore, the POM preparer in the project office needs to ensure that (s)he is not only in compliance with the formal tasking and the local budget staff instructions, but also satisfies the information and documentation needs of the Air Staff project representative.

e. BEST PRACTICES: After submission of the POM package, the project office should posture itself to be able to respond effectively to programmatic questions, and to be able to generate quantitative answers to Air Staff requests to develop and price out program variations to the POM submission. The capability to generate this "what-if" information in a timely (and quality) manner is important, since the reconciliations and rankings to be performed by the Resource Allocation Teams may require modifications to the Operating Command POM requests programs in terms of funding levels, quantities, schedules, or other programmatic aspects. If a project office is unable to provide the necessary information, or not in time to support the decision makers, the project may not be supported, or approved with insufficient funding levels.

f. TRAPS: If the POM is the first for the project, the submission will be considered a "New Start," and identified as such. There may be additional documentation requirements and a higher level of review for these projects, since there is not an existing funding line. Due to this, the PEM, with project office support, must be especially prepared to defend potential future funding requirements.

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1. ELEMENT: B9, TBS 0.2.2.5 (IFC 93-3)

2. ELEMENT TITLE: Conduct AFSARC Review (Air Force Systems Acquisition Review Council)

3. ELEMENT OWNER(S): Air Force Acquisition Executive (AFAE) , SAF/AQX

4. ELEMENT STAKEHOLDER(S): Operating MAJCOM, Air Force Acquisition Executive (AFAE) , SAF/AQX, and Implementing Command.

5. REQUIREMENT:

a. SAF Order No. 20.6 "Establishment of the Department of the Air Force Systems Acquisition Review Council (AFSARC),"23 Nov 81. This defines the Secretary of the Air Force (SAF) directed-roles and responsibilities of the AFSARC.

b. SAF/AQ Memorandum for AFSARC members, 17 Apr 3. This covers who will present information to the AFSARC.

c. DoDI 5000.2, Part 11, Section C. This delineates the documents required for milestone reviews.

d. AF Sup 1/DoDI 5000.2 Part 13 Section A, Atch 1, Aug 92. This section covers the basic procedures that the AFSARC will follow.

6. PURPOSE/OBJECTIVES:

a. Purpose: The AFSARC process implements DoDI 5000.2 Section 11-C for the Air Force Acquisition Executive (AFAE) review of ACAT I programs, any Joint program for which the Air Force is the lead, and ACAT II-IV programs as determined by the Secretary of the Air Force (SAF) or AFAE.

b. Objective: The AFSARC is convened to review ACAT I acquisition programs prior to a milestone decision or prior to a program review by the Secretary of Defense. It is the Air Force review process which reviews all program documentation prior to going to the Defense Acquisition Board (DAB). The AFSARC functions as the DAB for all Air Force programs that are less than ACAT I. The AFSARC is held in addition to both the Summit reviews and the DAB reviews. All three of these reviews essentially do the same thing, they review all the program documentation to make a recommendation for or the actual decision for program go-ahead or continuance. The only difference between the three is the level of review and the decision authority of the participants.

7. DESCRIPTION: This block is the first major Air Force Review of the program prior to issuing an Acquisition Decision Memorandum (ADM). It falls between the Joint Requirements Oversight Council (JROC) and the DAB Predecessor blocks are A-8, B-7, C-14. Successor blocks are A-9 and B-10.

a. The AFSARC is the Air Force corporate body that advises the AFAE on the acquisition of major systems. There are 11 permanent AFSARC members and 3 advisors.

Chair: The AFAE, who is the Assistant Secretary of the Air Force (Acquisition), chairs the AFSARC.

Members: Assistant Secretary of the Air Force (Financial Management and Comptroller)
Assistant Secretary of the Air Force (Space)
Assistant Secretary of the Air Force (Manpower, Reserve Affairs, Installations, and Environment)
Vice Chief of Staff
Deputy Chief of Staff (Personnel)
Deputy Chief of Staff (Plans and Operations)
Deputy Chief of Staff (Logistics)

Deputy Chief of Staff (Test and Evaluation)
Director of Programs and Evaluation
Commander, Air Force Operational Test and Evaluation Center
Commander, Air Force Test and Evaluation
Advisors: General Counsel
Assistant Chief of Staff for Intelligence
Director of Strategic, SOF and Airlift Programs

b. The AFSARC also has an Executive Secretary responsible for administrative support to the AFSARC. The Executive Secretary is responsible for : scheduling AFSARC meetings and pre-briefs, publishing the AFSARC planning schedule, distributing read-ahead material, publishing AFSARC meeting agendas and approved attendance lists, guidance on AFSARC policy and procedure, and coordinating Air Force participation in the DAB.

c. For definition purposes, the SAF/AQ or AF organization responsible for the Program Element Monitor (PEM) function is designated as the "Sponsoring AFSARC Member."

d. The AFAE may convene an AFSARC for the following reasons: 1) to review acquisition programs prior to milestone decisions or prior to program review by the Secretary of Defense or the DAB; 2) to review programs when nominated for review by an AFSARC member and approved by the AFAE; 3) as requested by the AFAE; 4) as directed by the Secretary of the Air Force. There are three types of AFSARC meetings - Milestone Meeting, Program Review, and Principals Meeting. Only the Milestone Meeting is discussed in detail here.

e. AFSARC meetings are approved by the AFAE. Members and advisors are notified of meetings by the Executive Secretary. A listing of all planned AFSARCs is published every 4 months.

f. Milestone AFSARCs can only be waived by the AFAE. The AFAE is the Decision Authority for special requirements, operating procedures, and abbreviation or waiver of documentation requirements.

g. Procedures. For DAB programs a Joint OSD-AF meeting will be held approximately 6 months before the planned milestone. This will be scheduled by OSD. At this planning meeting the Project Manager or PEM should present the project status, a proposed project schedule, as much cost information as is available, the potential issues and schedule of efforts to be accomplished to get to the AFSARC. Remember an Integrated Program Summary (IPS) and a Cost Analysis Requirement Description (CARD) are not required for a Milestone 0 DAB, but the information that is in an IPS and CARD is the type of information the decision makers want to see.

h. Attendance. Only AFSARC members and advisors or their representatives are allowed to attend the AFSARC. Other attendees are at the written invitation of the AFAE. The sponsoring AFSARC member will provide recommendations for other attendees to the Executive Secretary at least 5 days prior to the AFSARC meeting. Be sure the PEM secures the approval for appropriate SPO and Using Command personnel attendance.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Prior to an AFSARC, all pertinent documentation must be prepared. The sponsoring AFSARC member is responsible to ensure all required documentation and special reports are submitted at least 6 working days before the AFSARC.

For ACAT I programs, the AFSARC is normally held at least 5 weeks before the DAB review. Other AFSARC meetings will be held as determined by the AFAE. However, it is the responsibility of the sponsoring member to ensure the AFSARC is scheduled for those programs that will only require an AFSARC (non-DAB programs).

b. Exit: Exit from this block when the decision is made to go ahead to the DAB or issue a go-ahead to proceed into Phase 0.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The documentation requirements for an AFSARC are the same as for a Milestone Review. For Milestone 0 the MNS and DIA Intelligence Report (ACAT I) or Component Intelligence Report (ACAT II,III,IV) are required. See blocks A-5 Validate MNS Threat (DIA), B-07 - Air Staff MNS Staffing and Coordination; C14 - Develop Draft Phase 0 Plans (Lead MAJCOM).

b. Outputs: The output of an AFSARC is either an Acquisition Decision Memorandum (ADM) for non-DAB programs or, for DAB programs, a memo that goes to the DAB along with all the other required documentation. See blocks A09 - Conduct DAB Milestone 0 Review, and B10 - Write and Issue Phase 0 Program Management Directive (PMD). For non-DAB programs, the sponsoring member will prepare an Acquisition Decision Memorandum (ADM) through the AFSARC Executive Secretary, for signature by the AFAE within 5 working days after the AFSARC review. For DAB programs, the sponsoring member will update the briefing for the DAB to include AFSARC findings, coordinate it within the Air Staff, and provide the results to the DAE within 10 working days.

10. KEY REFERENCES:

a. SAF Order No. 20.6 "Establishment of the Department of the Air Force Systems Acquisition Review Council (AFSARC),"23 Nov 81. This defines the SAF directed roles and responsibilities of the AFSARC.

b. SAF/AQ Memorandum for AFSARC members, 17 Apr 93. This covers who will present information to the AFSARC.

c. DoDI 5000.2, Part 11, Section C. This delineates the documents required for milestone reviews.

d. AF Sup 1/DoDI 5000.2 Part 13 Section A, Atch 1, Aug 92. This section covers the basic procedures that the AFSARC will follow.

e. SAF/AQ Acquisition Policy 93M-0XX (DRAFT) "Milestone 0 Decision Process - ACTION MEMORANDUM." This covers the roles and responsibilities of various organizations as well as needs and procedures for the Milestone 0 decision process.

11. IMPLEMENTATION TOOLS: AFSARC/DAB Planning Guidelines summarize the steps normally required for each milestone. Contact SAF/AQX for the current copy of this document.

12. PLANNING GUIDANCE: The AFSARC/DAB Planning Guidelines/Checklist has the schedule of events that are required prior to an AFSARC. Essentially, the process starts 6 to 7 months prior to a DAB with an AFSARC planning meeting, and has multiple meetings and reviews prior to the DAB. See the AFSARC/DAB planning guidelines for the latest detailed information.

a. DURATION: The AFSARC meeting itself is normally a 1 day affair. However, it takes 6 to 7 months to get all the documents ready for the review.

b. CONSTRAINTS: Major constraints for the AFSARC are getting the program documentation ready in time and in the proper format. Don't make this a marketing briefing; follow guidelines explicitly. Another constraint is the briefing itself. This will require numerous changes and practice briefings. Ensure you allow sufficient time prior to the actual AFSARC meeting to get all the pre-briefs accomplished.

c. RESOURCES: All functional disciplines must be involved in this process. The number of person-hours required is difficult to define but will be high. There are no special security, facilities, computers (hardware and/or software), required specifically for the AFSARC. The only requirements are those required for the normal program security.

d. LESSONS LEARNED: Contact the SAF/AQX office for the latest guidance and lessons learned from the most recent AFSARC and to get the latest personal preferences of the AFSARC members about how they want to be briefed. You are briefing this panel to convince them that the program should be funded. It is in your best interest to brief them in a manner they like. Personal preferences with respect to chart format, data presentation format and conduct of the briefing should be coordinated with the AFSARC Executive Secretary prior to putting together the briefing charts for the AFSARC.

e. BEST PRACTICES: It is a good idea to pre-brief the members of the AFSARC or at least their staffs before the AFSARC review to make sure you are covering their concerns in the AFSARC briefing. This is not always easy to do but is a good idea.

Remember an IPS and a CARD are not required for a Milestone 0 DAB. However, the latest guidance from SAF/AQX is that you should have in your "hip pocket" an IPS/CARD plan of attack even for this milestone review.

f. TRAPS: Not using the correct briefing format. Not submitting the required documentation early in the process.

1. **ELEMENT:** B10, TBS 0.2.3.2 (IFC 93-3)

2. **ELEMENT TITLE:** Write and Issue Phase 0 PMD

3. **ELEMENT OWNER(S):** SAF/AQXA, AF/XOR

4. **ELEMENT STAKEHOLDER(S):** AF/XOR, Operating Command, Other SAF/AQ 4 Ltr Offices, AF/IN, and Implementing Command.

5. **REQUIREMENT:** AFR 800-1, Air Force Acquisition System, 16 Feb 90, Paragraph 3.a. Defines the requirement and point of contact for Program Management Directives (PMDs).

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of the PMD is to direct programmatic responsibilities to major command, field, and test organizations for systems development, modification, or acquisition in broad terms. PMDs originate within the Headquarters (Secretariat and Air Staff) and are coordinated with all outside implementing, supporting, participating, operating, and test agencies.

b. Objectives: The intent of the PMD is to integrate all activities which affect the life cycle of an acquisition. All Air Force acquisitions are required to have a complete and current PMD.

7. **DESCRIPTION:**

a. Once the Milestone Decision Authority (MDA) makes a decision to proceed with Concept Exploration and Definition (CE&D), an Acquisition Decision Memorandum (ADM) is issued in accordance with DoDI 5000.2, Parts 11B and 11C (A9). For non-Defense Acquisition Board (DAB) projects, the sponsoring member will prepare an ADM for Air Force Acquisition Executive (AFAE) signature (B9). Upon receipt of the ADM from the MDA, the appropriate Air Staff Office (e.g., AF/XOR) issues a PMD to the assigned lead and support centers which clearly identifies specific responsibilities of those agencies whose efforts are required for completing the Phase 0 activities (D21 and D78). PMDs will include the following information:

(1) Assignment of Implementing, Participating, Operating Commands and Test Agency, as required.

(2) Identification of requirements documents (i.e. Mission Need Statement (MNS)) and related documents (i.e., Threat, Defense Planning Guidance (DPG), etc.).

(3) Identify Operating Command responsible for establishing the Concept Action Group (CAG) and leading the concept studies.

(4) Identify funding amount and source and minimum set of study alternatives.

(5) Direct development of the Cost and Operational Effectiveness Analysis (COEA) and Operational Requirements Document (ORD).

(6) Identify responsible Phase 0 participants.

(7) Identify required documentation and schedule considerations for the next milestone.

(8) Establish review and coordination procedures for next milestone decision.

b. If the decision from the MDA affects any programs already under development, then the PEOs or Program Element Monitors (PEMs) who are responsible for those programs need to be involved to ensure that their PMDs are changed to support ADM tasks.

c. The PMD is not a budgetary document and provides no obligation (funding) authority.

d. The PMD is coordinated with all major command level organizations tasked with direction prior to being coordinated throughout the headquarters. It is the responsibility of the originating office to ensure full and complete distribution of the final document in accordance with the mandatory distribution list in SAF Headquarters Operating Instruction (HOI) 800-2, Attachment 6. In addition to this list, the originating office creates a project specific distribution list for organizations listed in the PMD. At the very least, this list will be comprised of the Implementing Command, MDA, Project Director, and any headquarters and field offices tasked in the PMD.

e. SAF HOI 800-2 (DRAFT) details all policy, procedures and documentation requirements for completing and coordinating PMDs and includes sample formats for the various types of PMDs. A copy of this Draft HOI may be found in the YX Library.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: This activity starts with the issuance of an ADM by the MDA (A9 and B9).

b. Exit: Issuance of the PMD to the appropriate agencies (D21 and D78).

9. KEY INPUTS AND OUTPUTS:

a. Inputs: ADM (A9 and B9)

b. Outputs: PMD (D21 and D78)

10. KEY REFERENCES:

a. SAF HOI 800-2, Policy and Guidance for Preparing Program Management Directives, 1 Jan 93 (DRAFT), details all policy, procedures, and documentation requirements for completing and coordinating PMDs and includes sample formats for the various types of PMDs.

b. Air Force Acquisition Model (AFAM)

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: The PMD will be issued upon receipt of the ADM. Subsequent PMDs will be issued within 45 days of the annual submission of the President's Budget (PB), or at the issuance of a subsequent ADM based on an MDA decision.

b. CONSTRAINTS: None identified.

c. RESOURCES: Project office support in preparing the PMD should be expected.

d. LESSONS LEARNED: There are no lessons learned regarding Milestone 0 PMDs due to the small number of MNSs that have been approved based on the new DoD 5000 series requirements, per AF/XORJ.

e. **BEST PRACTICES:** Close coordination between the project office and the AF/XOR during the writing of the PMD can help to prevent problems later. If possible, the project office should offer to write a draft PMD to aid AF/XOR. It is important that the new PMD be analyzed immediately upon receipt in order to identify areas of responsibility, appropriate OPRs and to determine executability of the PMD.

f. **TRAPS:** A poorly written or inappropriate PMD can direct designs/solutions or program schedules prematurely. In these cases the project office must get back to the originating agency to relieve/loosen the direction preferably during the coordination process.

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1. **ELEMENT:** B11, TBS 1.1.4.5.1 (IFC 93-3)

2. **ELEMENT TITLE:** Provide AF/IN Threat Support

3. **ELEMENT OWNER(S):** HQ USAF/IN

4. **ELEMENT STAKEHOLDER(S):** HQ AFISA/INAA, HQ USAF/INX, HQ AFIC, Product Center Director of Intelligence (DI), HQ USAF/ICO, DIA, HQ USAF/XOR, Operating Command, and Implementing Command.

5. **REQUIREMENT:**

a. DoD Directive 5000.1, Defense Acquisition, 23 Feb 91, Part 1. This regulation contains information on the relationship of threat assessment to the acquisition process.

b. DoD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 4. This regulation addresses policies and procedures for production, review, and validation of intelligence information in support of defense acquisition programs.

c. AF Regulation 200-13, Intelligence Support to the Requirements and Acquisition Processes, 20 Jul 92. This regulation states the Air Force policy for identifying and acquiring intelligence to support the Air Force requirements and acquisition processes.

6. **PURPOSE/OBJECTIVE(S):**

a. Purpose: Manage threat and intelligence infrastructure support throughout the acquisition process from need determination to operational employment.

b. Objectives: Ensure that the effectiveness of a proposed system within its intended threat environment be a fundamental concern of the acquisition effort.

7. **DESCRIPTION:**

a. Threat assessments are produced to support the requirements and acquisition processes. They are a key factor in determining mission needs. HQ USAF/IN in concert with the Defense Intelligence Agency (DIA) provides Intelligence and Threat support to the Concept Action Group (CAG) which is lead in the development of the Cost and Operational Effectiveness Analysis (COEA) and the Operational Requirements Document (ORD) (both documents address threat). The CAG is the Phase 0 study group formed to explore materiel alternatives and ensure that implementing organizations notify HQ USAF/IN and DIA to develop/update threat asessment documents. However, the CAG membership should include representatives from AF/IN and DIA to address intelligence (threat) issues needed to achieve Phase 0 objectives (C16). The following paragraphs further explain how AF/IN provides threat support to the acquisition process between Milestone 0 and Milestone I:

b. HQ AFISA/INA manages threat support to Air Force acquisitions for HQ USAF/IN. The Product Center DI (ASC/NAIC/TIA for ASC) is the focal point for obtaining threat support for an acquisition program. The System Threat Assessment Report (STAR) is the authoritative reference for threat data supporting a major acquisition program (D50). STARs are required for Acquisition Category (ACAT) 1C and 1D programs, and for major modifications as defined by DoD 5000.2 and Air Force Policy Directive 10-6. The System Threat Assessment (STA) is the authoritative threat reference for threat data supporting ACAT II-IV programs and is formatted like a STAR. STAs for ACAT II programs are stand-alone documents of about 25 pages. STAs for ACAT III-IV programs are contained in the ORDs, and are normally two to five pages. When no ORD exists for ACAT III-IV programs, the appropriate Threat Environment Description (TED) suffices (B2).

c. The DIA, as principal advisor to DoD Components for intelligence and threat concerns, is responsible for reviewing and validating some of the DoD component produced threat documents relating to acquisition projects (A10).

d. HQ AFISA/INA provides the substantive threat review of all ORD threat assessments for the Air Staff. The ORD threat assessment should be similar to the STAR format, as applicable. HQ USAF/INX reviews all ORDs to ensure adequate intelligence infrastructure exists to support a weapon system requirement. Infrastructure components include data flow and data bases; target materials; mapping, charting and geodesy; system interfaces; security classification; and personnel and training.

e. Prior to Milestone I, for HQ USAF/XO and SAF/AQ selected projects, the Operating Command and HQ USAF Intelligence Counterpart Officers (ICOs) form an Intelligence Support Working Group (ISWG) to determine weapon system-specific intelligence requirements and costs. Working with HQ USAF intelligence functional managers, ICOs draft required intelligence inputs for a proposed acquisition program. These initial inputs and associated costs are incorporated into the initial COEA as part of the projected life cycle cost for a given project.

f. During the Program Management Directive (PMD) preparation and update process, SAF/AQ coordinates the PMD with HQ AFISA and HQ USAF/INX to make sure threat and infrastructure support are properly tasked to support the proposed program.

g. HQ AFISA and HQ USAF/INX approve threat or intelligence infrastructure matters in the Integrated Program Summary (IPS), the Test and Evaluation Master Plan (TEMP), Operational Test Plan (OTP), and COEA.

h. Unique and tailored threat documentation to support the AF systems survivability program will be produced by the intelligence community and be HQ USAF/IN approved.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Whenever requested, whether by the user or the acquisition community, HQ USAF/IN will provide support using key data extracted from approved intelligence community threat information.

b. Exit: Continuous threat and intelligence support to the project office throughout the acquisition process from determination of need to operational employment.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: Current validated DIA threat information, the threat environment documented in the Mission Need Statement (MNS) and the Program Management Directive (PMD) (C12 and B10).

b. Outputs: Continuous intelligence support to the project office by providing input and review of threat documentation to ensure the effectiveness of a proposed system within its intended threat environment.

10. KEY REFERENCES:

a. AF Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, Paragraphs 1.1.4, 1.1.7, and 1.2.3. This regulation discusses "task-to-need," threat assessments in determining mission needs, and Phase 0 studies.

b. AFSC Regulation 200-3, Theat Assessment Documentation, 5 Apr 85, Atch 1. This regulation addresses HQ AF/IN responsibilities and the threat and intelligence database.

c. DIAR 55-3, Intelligence Support for Defense Acquisition Programs, 30 Mar 92. This regulation addresses overall intelligence support.

11. IMPLEMENTATION TOOLS:

a. The formulation of a Threat Steering Group (TSG) is an effective means of providing active threat support to Joint Service or complex system acquisitions. The TSG acts as an advisory body on threat matters. It is a Joint-Service and ad hoc intelligence group. When the Air Force is lead Service, this group would normally be chaired by HQ AFISA.

b. The Threat Working Group (TWG), chaired by the project team, gives advice, guidance, and recommendations to the program manager on effective responses to the threat environment. The TWG should include representatives from the project team and the appropriate Director of Intelligence (DI). It should also include representatives from the using commands and contractor personnel. See D50 for additional information on TWG.

12. PLANNING GUIDANCE:

a. DURATION: DoD policy requires that the effectiveness of a proposed system within its intended environment be a fundamental concern of the acquisition effort. Therefore, AF/IN threat support is an ongoing effort through all phases of the systems acquisition process.

b. CONSTRAINTS: Resources as defined in next paragraph.

c. RESOURCES:

(1) HQ AFISA uses two to three project teams for threat support. For example, they are presently divided into two teams; 1 for Space and Electronic Combat Systems and 1 for Weapons and Aircraft. Out of those teams, one Threat Support Program Manager handles three to four specific programs with back up personnel as needed.

(2) The project team needs to designate a point of contact (POC) within the project office to interface with the Product Center DI for intelligence support. This will enable project teams to be kept up-to-date on changes in the threat environment and obtain guidance and recommendations on any new intelligence issues that may apply to their projects.

d. LESSONS LEARNED: Early and continued collaboration among the intelligence community and the Operating and Implementing Commands will expedite the development, review, approval, and validation of threat documentation and help to ensure the availability of valid threat assessments in a timely manner. The TWG seems to be the best approach.

e. BEST PRACTICES:

(1) Use only threat data sources, to include the target data base, and assessment procedures which have been validated by DIA in preparing system assessments for ACAT I through IV programs and highly sensitive classified programs.

(2) Participate with the DIA and AF/IN in the development and implementation of long range forecasting methodologies and threat integration techniques.

(3) Have a constant, ongoing, dynamic between cost, schedule, technology, threat, and security risk. These are interactive and should be managed in concert rather than as separate risk issues.

(4) To ensure common threat data across a given project or program, get it right in the STAR or STA and reference - - don't repeat - - the STAR or STA in other documents, e.g., ORD, TEMP, COEA, etc.

(5) To ensure full system capability, identify required intelligence infrastructure components early.

(6) Meet schedule requirements to ensure adequate time for review and validation.

f. TRAPS: Failure to maintain consistency when producing the various threat documents for a given project may lead to misunderstanding, confusion, rewrites and failure to gain approval and validation. See best practices (3) above.

1. **ELEMENT:** B13, TBS 1.2.3.8.2 (IFC 93-3)

2. **ELEMENT TITLE:** Update Program POM/BES Input

3. **ELEMENT OWNER:** Secretary of the Air Force (SECAF)

4. **ELEMENT STAKEHOLDER(S):** Air Force Chief of Staff (CSAF), HQ USAF Directorate of Programs and Evaluation (AF/PE), Air Force Comptroller (SAF/FM), Deputy Chief of Staff for Plans and Operations (AF/XO), Program Element Monitor (PEM), MAJCOMs, and Project Manager.

5. **REQUIREMENT:** DoD Directive 7045.14, The Planning, Programming, and Budget System (PPBS), 22 May 84.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this activity is to update (or create) approved Air Force financial planning documentation. For a specific project office, the Program Objective Memorandum (POM), and (to a lesser extent) the Budget Estimate Submission (BES), are the primary opportunities for a project office to submit project/program requirements into approved Air Force planning documentation.

b. Objective: The objective is for the Air Force to develop a comprehensive and integrated plan which supports the Defense Planning Guidance (A1). At the project level, it should be the objective of the of the project office to get the program financial requirements approved at the earliest opportunity to prevent schedule delays due to funding availability.

7. **DESCRIPTION:**

a. National security policy, as documented in the Defense Planning Guidance (DPG); provides guidance to the Services for POM development around December in the odd-numbered years . This provides the SECDEF's fiscally-constrained guidance on policy, strategy, force planning, and resource planning. During this same time frame, OSD provides the POM documentation requirements, the POM Preparation Instructions (PPI) to the Services. Based on this information, all MAJCOMs, Field Operating Agencies, and Direct Reporting Units provide POM inputs to the Air Staff. The subsequent Air Staff activities are the subject of this element.

b. The development of the POM is the process by which all Air Force resources required to execute OSD Defense Planning Guidance (Block A1) are documented and validated. [For a specific project, the POM represents an opportunity to get the projected resource requirements documented in the Program Cost Estimate (e.g., D47) approved.] The POM is used to update the planning for the 6 years contained in the Future Year Defense Program (FYDP). The FYDP is the official DoD database and document which is a compilation of the total resources (forces, manpower, and dollars) programmed for DoD, arranged by Major Force Program (MFP) and appropriation. The FYDP projects 6 years for all data except forces, which extend an additional 3 years. After OSD adjustments are made to the POM, the Air Force is allowed to update and reprice the programs which were approved . This is documented in the Budget Estimate Submission (BES), which emphasizes the first 2 years of the FYDP, and converts the program oriented format of the POM into the appropriation categories. The BES is a primary input to the President's budget submission to Congress, and if supported, eventually program budget appropriations.

c. The current structure for the Air Force corporate review/screening process was established in 1991, with the creation of eight Resource Allocation Teams (RATs). The RATs are the focal points for resource issues for the following functional areas: Nuclear Deterrence, Power Projection, Global Mobility, Space and CCCI, Materiel Support, Personnel Support, Classified Programs, and National Foreign Intelligence Programs. HQ USAF Directorate of Programs and Evaluation (AF/PE) is the office

of primary responsibility for the Resource Allocation Process. Another key player in the POM process is the Program Element Monitor (PEM), who is the overall focal point for the programs within his Program Element. The PEM is responsible for addressing all issues concerning his programs. In short, since every Program Element (PE) is assigned to a RAT, the PEM must interface with that team to ensure his PE is properly supported.

d. The Program Objective Memorandum: In the fall of the odd-numbered years, the MAJCOMs provide their POM proposals to HQ USAF. These include a prioritized list of disconnects and any "new starts" that are proposed. The RATs convene, and with the support of the functional staffs, SAF/FM and AF/PE, the teams review and evaluate the MAJCOM inputs. Based on the POM inputs, the RATs generate program options for presentation to the Air Force Council, CSAF, and SECAF from late January until early March (of the even-numbered years). During this same period, the players update the POMs to reflect any Congressional budget activities, the President's Budget submission to Congress, OSD budget exercises or fiscal guidance, and new OSD Defense Planning Guidance or Air Force Planning Guidance.

e. At the completion of the POM deliberations, SAF/FM verifies the pricing of the approved options, and the final Air Force POM is documented and coordinated. The POM is submitted to OSD on 1 April (A12) and at this time, SAF/FM updates the FYDP to reflect the Air Force approved position. At the OSD level, any SECDEF decisions to adjust the service POMs are recorded in Program Decision Memorandums (PDMs).

f. The Budget Estimate Submission: The first step in the BES process is the Air Force Summer Review. SAF/FM performs the Summer Review, which consists of an evaluation of the pricing and execution of the Air Force investment accounts. Program and financial information from this review, plus any PDMs issued by OSD, and any necessary repricing of elements in the databases, is used to develop the Air Force Budget Estimate Submission, which occurs in August/September. Note: While the project offices can expect to be tasked to develop program documentation to support budget requirements in the BES exercise, normally only limited (if any) adjustments to the approved Air Force position are allowed.

g. At this time, the project may not need funding for many years, but if funding will be required in any of the years addressed in the POM, it is essential to submit the financial requirements for the program. The project office must establish these financial requirements in Air Force planning data bases as soon as possible to ensure that all funding is available to support execution of the planned program.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The POM activities in the field start in the spring of the odd-numbered years, when the Secretariat/Air Staff provides each MAJCOM with the dollar and resource baselines each should use to derive the MAJCOM POM packages. In the summer, AF/PE publishes the POM Preparation Instructions, which outlines detailed instructions and submission schedules. In the fall, the MAJCOM POM inputs (C22) are submitted to HQ USAF. The MAJCOMs are tasked to generate the BES in mid summer of the even-numbered years, and Air Force activity starts upon receipt of the MAJCOM inputs (C22) in August-September.

b. Exit: For the POM, the activity is completed with the delivery of the Air Force POM (in both hard copy and computer file) to OSD (A12) at the first of April in the even-numbered years. For the BES, the activity is completed with the submission of the BES to OSD in mid-September of the even-numbered years (A12).

9. KEY INPUTS AND OUTPUTS:

a. Inputs: For the POM, information necessary to start this activity is contained in the Defense Planning Guidance (A1), Air Force Planning Guidance, the FYDP and the MAJCOM specific baselines, and the POM Planning Instructions. The USAF POM review process requires the POM submissions (C22) from the MAJCOMs. For the BES, results of the Summer Review, and the receipt of Program Decision Memorandums from OSD and the MAJCOM BES submissions (C22) are necessary.

b. Outputs: For both the POM and the BES, the output is the delivery of the Air Force approved documentation to OSD (A12).

10. KEY REFERENCES: The references below provide more specific implementation guidance.

a. AFP 172-4, The Air Force Budget Process, Oct 87 - Describes the Air Force budget process.

b. DoDI 7045.7, Implementation of the Planning, Programming, and Budgeting System (PPBS), 23 May 84 - Describes the budget process within the Department of Defense.

11. IMPLEMENTATION TOOLS: "The PPBS Primer," 7th Edition, May 93. This document is published by the Directorate of Programs and Evaluation, Department of the Air Force, and provides a valuable description of the current PPBS process. This is one of the few documents that describes the current process, and it does so in detail. Further, it defines the activity schedule for the development of the FY96 POM.

12. PLANNING GUIDANCE:

a. DURATION: After receipt of the MAJCOM POM inputs in the fall, Air Force works POM iterations through the following March. The BES activities occur from August through mid-September, when the approved documentation is delivered to OSD.

b. CONSTRAINTS: The primary constraints to this activity are the resource limitations placed on the Air Force by OSD, and the schedule limitations on management reviews inherent in the budget timetable.

c. RESOURCES: The POM deliberations in the Air Staff require intensive activity by the Resource Allocation Teams, AF/PE, SAF/FM, and the functional staffs to reconcile planning objectives and resources. The BES generation is also a major exercise, but is more limited, since it represents a financial repackaging of the approved Air Force program.

d. LESSONS LEARNED: During the Air Staff POM deliberations and reviews, it is important that the project manager keeps in close contact with the project representative(s) in AF/XO (and SAF/AQ, if someone has been identified). This is important to help resolve issues that may arise, and to ensure that they fully understand all the pertinent aspects of the project, and can defend the projected resource requirements. Also, development of the POM is a comprehensive and complex task, and the information requested can be expected to change with every submission. Therefore, the POM preparer in the project office needs to ensure that (s)he is not only in compliance with the formal tasking and the local budget staff instructions, but also satisfies the information and documentation needs of the Air Staff project representative.

e. BEST PRACTICES: After submission of the POM package, the project office should posture itself to be able to respond effectively to programmatic questions, and to be able to generate quantitative answers to Air Staff requests to develop and price out program variations to the POM submission. The capability to generate quality "what-if" information, often within hours, is important, since the reconciliations and rankings to be performed by the Resource Allocation Teams may require

modifications to the MAJCOM POM request programs in terms of funding levels, quantities, schedules, or other programmatic aspects. If a project office is unable to provide necessary information in time to support the decision makers, the project may not be supported, or may be approved with insufficient funding levels.

f. **TRAPS:** If the POM is the first for the project, the submission will be considered a "New Start," and identified as such. There may be additional documentation requirements and a higher level of review for these programs, since there is not an existing funding line. Due to this, the project office must be especially prepared to defend project requirements.

1. **ELEMENT:** B14, TBS 1.2.2.3 IFC 93-3

2. **ELEMENT TITLE:** Prepare for Requirements Summit

3. **ELEMENT OWNER(S):** AF/XOR

4. **ELEMENT STAKEHOLDER(S):** Chief of Staff of the Air Force (CSAF), SAF/AQ, Operating Commands, Program Executive Officers (PEO), Air Force Operational Test Agency, Air Force Material Command (AFMC), and Air Educational Training Command (AETC).

5. **REQUIREMENT:** SAF/AQ Policy 90M-006, Requirements and Acquisition Program Review.

6. **PURPOSE/OBJECTIVES:** The purpose of this element is to do all of the work necessary to prepare the briefing for the Requirements and Acquisition Program Review (Summit). The objectives of this element are to identify the programs that warrant a Summit, task the participants to support the Summit process, establish and coordinate Summit objectives, prepare the Summit briefing, and present the briefing to the pre-Summit reviews.

7. **DESCRIPTION:**

a. The Summit preparation and review activities can be thought of in three phases -- tasking, preparation, and review. The tasking phase includes identifying those programs that hold Summits and the organizations and personnel who need to participate. All Acquisition Category (ACAT) I programs are required to hold a Requirements and Acquisition Program Review (Summit) before Milestone I or at other times requested by CSAF. ACAT II, III, and IV programs can be nominated for a Summit by SAF/AQ, AF/XO, AFMC or the Using Command for any issue that would require a senior level review. Any recommendation for a Summit must be approved by CSAF. Summit membership consists of the Air Force Acquisition Executive (AFAE), the Commanders of the Operating Command(s) having specific interest in the program being reviewed, Commanders of AFMC and AFOTEC, AF/XO, AF/IN, AF/LG, the appropriate SAF/AQ PEO and mission area director, and the AFMC program director for the program being reviewed. AF/XOR holds a kickoff meeting for Summit participants where the Summit process is explained, plans and schedules are developed, duties and working group members are assigned, Summit objectives and goals for the program are identified, lessons learned from previous Summit processes are briefed, and the Summit briefing format is provided.

b. The briefing preparation phase is where all the work gets done. The working groups review national guidance and strategies (A1 and B1) and track through the Mission Area Assessment (MAA - C1), Mission Need Analysis (MNA - C3), scenarios, Concept of Operations (CONOPS - C2), and Mission Need Statement (MNS - A6) for the system. They then document how system requirements have been added, deleted or modified during the development of the Operational Requirements Document (ORD - C26), validate the thresholds and goals through the use of tradeoff analyses, and identify the cost, schedule and technical drivers to understand how the critical requirements were selected. The Cost and Operational Effectiveness Analysis (COEA - C23) is reviewed to understand the rationale for the preferred alternative(s) selection (C25) and how the alternative(s) stack up against the requirements. Once this "requirements audit trail" is understood, the Summit briefing is prepared to identify any key issues.

c. The briefing is first given to the Colonel-level and then to a 1 to 2-star level. Issue resolution options are addressed at the 1 to 2-star review and incorporated into the briefing. The briefing then gets reviewed at the 3-star level at which major issues or questions are elevated and solutions are recommended. The briefing is now ready for the 4-star Summit (B15).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: For ACAT I programs, the process starts with receipt of the Major Defense Acquisition Programs (MDAP) list. The Summit process would begin so that the Summit briefing occurs at least 180 days before the Defense Acquisition Board (DAB) or Joint Requirements Oversight Council (JROC) meetings. For other programs, the process starts with the recommendation of a Summit to CSAF.

b. Exit: A briefing ready for the 4-star Summit, complete with issue resolution recommendations.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

Input Document	Source	Status
Mission Need Statement (MNS - A6)	User	Validated
Operational Requirements Document (ORD - C26)	User	Approved
Cost and Operational Effectiveness Analysis (COEA - C23)	User	Approved
Concept of Operations (CONOPS - C19)	User	Final
Test and Evaluation Master Plan (TEMP - D54)	SPO	Draft
Acquisition Program Baseline (APB - D51)	SPO	Draft
System Threat Assessment (Report) (STA(R) - D50)	SPO	Draft

(1) These documents must be available for review by the Summit working groups. The ORD must be current, complete, and approved by the MAJCOM/CC. These documents will be thoroughly reviewed, understood and scrubbed by the working group to form the basis of the Summit briefing.

b. Outputs: Scrubbed ORD and RCM

Requirements audit trail.
Rigorous tradeoff analysis identifying critical operational requirements.
Revised program schedule.
Summit briefing.

10. KEY REFERENCES:

a. AFI 10-601, paragraph 1.11.

b. SAF/AQ Acquisition Policy 90M-006, Requirements and Acquisition Program Review.

c. SAF/AQ Requirements and Acquisition Program Review (Summit) Process Guide.

11. IMPLEMENTATION TOOLS: SAF/AQ Requirements and Acquisition Program Review (Summit) Process Guide, Revision 4, 4 May 92. SAF/AQX is the OPR for Summit policy and publishes the approved list of MDAPs. This office also publishes the list of all Air Force acquisition programs by ACAT. The MDAP list should serve as the initial planning document for calling the mandatory Summit reviews. SAF/AQX is responsible for maintaining the process guide and the library of Summit minutes and lessons learned.

12. PLANNING GUIDANCE: The SAF/AQ Requirements and Acquisition Program Review (Summit) Process Guide is a good source for information presented in this paragraph.

a. DURATION: Should allow for 90 days to prepare for the actual Summit if all prior inputs have been completed and documented.

b. CONSTRAINTS: N/A

c. RESOURCES: Representatives from all of the stakeholder organizations will probably be committing 100% of their time to this activity during this 90 day period . There may be some computer simulations and/or analyses needed done by the product centers, conference rooms utilized, administrative assistance provided and travel arrangements made.

d. LESSONS LEARNED: While some Milestone II Summits have been convened, there have been no Milestone I Summits to date. To avoid wasted time and effort when the CSAF approves a Summit, AF/XO should immediately clarify the Summit purpose and each participant's responsibilities.

e. BEST PRACTICES: When a Summit is announced, the Action Officer should request information through SAF/AQX on lessons learned and process improvements.

f. TRAPS: Despite AFI 10-601 guidance, some Summits have been scheduled without notification to CSAF. To avoid confusion and unneccessary workload, anyone proposing a Summit for a non-MDAP program should fully coordinate their request prior to the issuance of the Summit tasking.

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1. **ELEMENT:** B15, TBS 1.2.2.4 (IFC 93-3)

2. **ELEMENT TITLE:** Conduct Requirements Summit

3. **ELEMENT OWNER:** AF/XOR

4. **ELEMENT STAKEHOLDER(S):** SAF/AQX, Air Force Acquisition Executive (AFAE), Using Command, AFMC, AFOTEC, AF/IN, AF/LG, Program Executive Officer (PEO), and Project Manager (PM).

5. **REQUIREMENT:** SAF/AQ Acquisition Policy 90M-006, Requirements and Acquisition Program Review, 2 Sep 90, directs Summit policy.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: Assess project (ACAT I) progress in meeting user-stated needs and requirements.

b. Objectives: Ensure the Operational Concept is complete; confirm funding levels, priorities, schedules, direction, management efforts are adequate; establish realistic, achievable, and affordable performance and support goals; and resolve major operational or technical issues that could affect success of the project.

7. **DESCRIPTION:** This activity begins as soon as preparations for the Summit are complete (B14): The ORD and RCM have been scrubbed, critical operational requirements have gone through rigorous trade studies (cost, schedule, performance), a requirements audit trail has been created or validated, the COEA and ORD have been approved by the Air Force Chief of Staff (CSAF), and a Summit briefing has been prepared. After the Summit, the updated COEA and ORD are used by the Product Center to support the Acquisition Strategy Process (D59). The COEA and ORD will also be reviewed by Secretariat and Headquarters-level personnel to prepare for the AFSARC Review (B21 and B22). The COEA will eventually be briefed to OSD/PA&E prior to the DAB Review (C29). Finally, the project POM/BES can be updated (B18), if the opportunity exists, with any new information since the previous POM/BES update, which was done after selection of the preferred alternative by the Using Command.

The Summit is a senior level review of a major defense acquisition (ACAT I). The CSAF, AFAE, or AF/XO may schedule a Summit. It is chaired by CSAF. The CSAF may direct reviews of ACAT II-IV projects based on recommendations of the Operating, Implementing, and Supporting Cmmands. The meeting is usually attended by the AFAE, respective commanders of the Using, Implementing, and Supporting commands, AFOTEC, AF/XO, AF/IN, AF/LG, the respective SAF/AQ Mission Area Director, the PEO, PM and AF/XOR. Other interested organizations may be invited depending on subject matter.

Members must consider operational concepts, the projected threat, and the capabilities of other supporting systems to ensure the technical solutions under development meet the user's objectives. The requirements review and scrub at this Summit have a greater impact on the success of the program than any future Summit.

As a general guide, the Summit meeting is scheduled at least 180 days prior to the next scheduled Defense Acquisition Board (DAB) review. AF/XOR (1) provides specific briefing time, format, and content, (2) schedules, conducts, and administers the Summit, (3) records, publishes and distributes CSAF minutes, decisions, and action items, and (4) serves as focal point for all issues requiring resolution. SAF/AQX is the OPR for Summit guidance and lessons learned.

Outline for a typical briefing:

TOPIC	BRIEFER
Purpose	AF/XOR
Background	AF/XOR, User
Mission (Strategy, Scenario, CONOPs)	User
Requirements (Key Parameters Audit Trail)	User
Test Issues	OTA (Operational Test Agency)
Current Project Status	PM
Trade-Off Analyses (Options, SMM)	PM
Recommendations and Conclusions	PM

The CSAF must be convinced that requirements are operationally justifiable and programmatically feasible to achieve. The CSAF can recommend project adjustments and restructure to the AFAE. CSAF also directs summit closure actions, e.g., update documents (ORD, RCM) to reflect changes approved at the Summit.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: A final briefing to the Summit four stars has been developed, reviewed and approved at subordinate levels. The MNS, ORD, RCM, COEA, CONOPS, TEMP, and APB have been prepared. Other preparatory activity has been accomplished (B14).

b. Exit: Summit members have reviewed the project to their satisfaction and CSAF has directed a future course of action.

9. KEY INPUTS AND OUTPUTS:

a. Input: A final briefing to the Summit four stars has been developed, reviewed and approved at subordinate levels. The ORD and RCM have been scrubbed (B14).

b. Outputs: Minutes documenting the four stars recommmendations and action items, lessons learned for future Summits, an updated POM/BES input (B16), an updated ORD, and an approved COEA.

10. KEY REFERENCES: In addition to Required document (see Paragraph 5):

a. AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, Paragraph 1.11, provides Summit guidance.

b. SAF/AQ Summit Process Guide, 4 May 92, provides a process for planning and executing Summits.

11. IMPLEMENTATION TOOLS: AFMC/XR is responsible for keeping the SAF/AQ Summit Process Guide. They also keep lessons learned, process improvement recommendations, and minutes from previous Summits.

12. PLANNING GUIDANCE: For more planning guidance, reference the predecessor block to this activity, Prepare for Requirements Summit (B14). For more lessons learned, best practices, and traps, reference the SAF/AQ Summit Process Guide.

a. DURATION: Summits can take anywhere from 3 hours to 3 days. Duration of action items will depend on the nature of the action.

b. CONSTRAINTS: A major constraint will be working the 4-star calendars to get them together in one room at the same time.

c. RESOURCES: The Summit will require a conference room large enough to accommodate the members identified above, plus supporting personnel

d. LESSONS LEARNED: Concentrate on scrubbing requirements early instead of preparing charts. Prior to the General Officer pre-briefs, generate firm, justifiable thresholds for the key parameters.

Operational requirements should be stated in terms of basic operational capabilities and be directly traceable to an operational mission need. You must be able to trace the roots of the requirement back to the CONOPS.

Ensure the testers are active in the requirements scrub. At three Smmits, specific user requirements were found to be impossible to achieve or test.

e. BEST PRACTICES: Use standard requirements terminology from the DOD 5000 series documents for terms such as threshold and objective, key parameters, critical system characteristic, system capabilities and characteristics, etc.

Get as close as you can to the principals to find out what issues they will be bringing to the table.

Review scenarios and CONOPS early in the process. This is necessary prior to scrubbing the RCM and SMM. A clearly defined CONOPS and well-scrubbed RCM and SMM are critical to a successful *summit*.

Develop realistic thresholds, objectives, and SMM values. This is important since these will be the basis for making trade-offs.

Several Action Officer and Colonel- level (even general officer level depending on program) reviews should have been held to fully define the CONOPS, scrub requirements and review the associated acquisition strategy. These reviews are important and can take up to 6-8 weeks.

SPO should identify primary cost/schedule drivers so the user can develop appropriate thresholds for those requirements.

f. TRAPS: Do not focus preparatory meetings on briefing preparation. Action officer and 0-6 level meetings should focus on actually scrubbing requirements. The briefing will be easier if the requirements are sound.

Do not use General Officer reviews to scrub requirements and acquisition strategy. Do this in the early planning meetings!

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1. **ELEMENT:** B16, TBS 1.2.4.5.4 (IFC 93-3)

2. **ELEMENT TITLE:** Update Program POM/BES Input

3. **ELEMENT OWNER:** Secretary of the Air Force (SECAF)

4. **ELEMENT STAKEHOLDER(S):** Air Force Chief of Staff (CSAF), HQ USAF Directorate of Programs and Evaluation (AF/PE), Air Force Comptroller (SAF/FM), Deputy Chief of Staff for Plans and Operations (AF/XO), Program Element Monitor (PEM), MAJCOMs, and Project Manager.

5. **REQUIREMENT:** DoD Directive 7045.14, The Planning, Programming, and Budget System (PPBS), 22 May 84.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this activity is to update (or create) approved Air Force financial planning documentation. For a specific project office, the Program Objective Memorandum (POM), and (to a lesser extent) the Budget Estimate Submission (BES), are the primary opportunities for a project office to submit project/program requirements into approved Air Force planning documentation.

b. Objective: The objective is for the Air Force to develop a comprehensive and integrated plan which supports the Defense Planning Guidance (A1). At the project level, it should be the objective of the project office to get the program financial requirements approved at the earliest opportunity to prevent schedule delays due to funding availability.

7. **DESCRIPTION:**

a. National security policy, as documented in the Defense Planning Guidance (DPG), provides guidance to the Services for POM development around December in the odd-numbered years . This provides the SECDEF's fiscally-constrained guidance on policy, strategy, force planning, and resource planning. During this same timeframe, OSD provides the POM documentation requirements, the POM Preparation Instructions (PPI), to the Services. Based on this information, all MAJCOMs, Field Operating Agencies, and Direct Reporting Units provide POM inputs to the Air Staff. The subsequent Air Staff activities are the subject of this element.

b. The development of the POM is the process by which all Air Force resources required to execute OSD Defense Planning Guidance (Block A1) are documented and validated. [For a specific project, the POM represents an opportunity to get the projected resource requirements documented in the Program Cost Estimate (e.g., D53) approved.] The POM is used to update the planning for the 6 years contained in the Future Year Defense Program (FYDP). The FYDP is the official DoD data base and document which is a compilation of the total resources (forces, manpower, and dollars) programmed for DoD, arranged by Major Force Program (MFP) and appropriation. The FYDP projects 6 years for all data except forces, which extend an additional 3 years. After OSD adjustments are made to the POM, the Air Force is allowed to update and reprice the programs which were approved . This is documented in the Budget Estimate Submission (BES), which emphasizes the first 2 years of the FYDP, and converts the program oriented format of the POM into the appropriation categories. The BES is a primary input to the President's budget submission to Congress, and if supported, eventually program budget appropriations.

c. The current structure for the Air Force corporate review/screening process was established in 1991, with the creation of eight Resource Allocation Teams (RATs). The RATs are the focal points for resource issues for the following functional areas: Nuclear Deterrence, Power Projection, Global Mobility, Space and CCCI, Materiel Support, Personnel Support, Classified Programs, and National Foreign Intelligence Programs. The HQ USAF Directorate of Programs and Evaluation (AF/PE) is the

office of primary responsibility for the Resource Allocation Process. Another key player in the POM process is the Program Element Monitor (PEM), who is the overall focal point for the programs within his Program Element. The PEM is responsible for addressing all issues concerning his programs. In short, since every Program Element (PE) is assigned to a RAT, the PEM must interface with that team to ensure his PE is properly supported.

d. The Program Objective Memorandum: In the fall of the odd-numbered years, the MAJCOMs provide their POM proposals to HQ USAF. These include a prioritized list of disconnects and any "new starts" that are proposed. The RATs convene, and with the support of the functional staffs, SAF/FM and AF/PE, the teams review and evaluate the MAJCOM inputs. Based on the POM inputs, the RATs generate program options for presentation to the Air Force Council, CSAF, and SECAF from late January until early March (of the even-numbered years). During this same period, the players update the POMs to reflect any Congressional budget activities, the President's Budget submission to Congress, OSD budget exercises or fiscal guidance, and new OSD Defense Planning Guidance or Air Force Planning Guidance.

e. At the completion of the POM deliberations, SAF/FM verifies the pricing of the approved options, and the final Air Force POM is documented and coordinated. The POM is submitted to OSD on 1 April (A13) and at this time, SAF/FM updates the FYDP to reflect the Air Force approved position. At the OSD level, any SECDEF decisions to adjust the Service POMs are recorded in Program Decision Memorandums (PDMs).

f. The Budget Estimate Submission: The first step in the BES process is the Air Force Summer Review. SAF/FM performs the Summer Review, which consists of an evaluation of the pricing and execution of the Air Force investment accounts. Program and financial information from this review, plus any PDMs issued by OSD, and any necessary repricing of elements in the data bases, is used to develop the Air Force Budget Estimate Submission, which occurs in August/September. Note: While the project offices can expect to be tasked to develop program documentation to support budget requirements in the BES exercise, normally only limited (if any) adjustments to the approved Air Force position are allowed.

g. At this time, the project may not need funding for many years, but if funding will be required in any of the years addressed in the POM, it is essential to submit the financial requirements for the program. The project office must establish these financial requirements in Air Force planning data bases as soon as possible to ensure that all funding is available to support execution of the planned program.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The POM activities in the field start in the spring of the odd-numbered years, when the Secretariat/Air Staff provides each MAJCOM with the dollar and resource baselines each should use to derive the MAJCOM POM packages. In the summer, AF/PE publishes the POM Preparation Instructions, which outlines detailed instructions and submission schedules. In the fall, the MAJCOM POM inputs (C27) are submitted to HQ USAF. The MAJCOMs are tasked to generate the BES in mid-summer of the even-numbered years, and Air Force activity starts upon receipt of the MAJCOM inputs (C27) in August-September.

b. Exit: For the POM, the activity is completed with the delivery of the Air Force POM (in both hard copy and computer file) to OSD (A13) at the first of April in the even-numbered years. For the BES, the activity is completed with the submission of the BES to OSD in mid-September of the even-numbered years (A13).

9. KEY INPUTS AND OUTPUTS:

a. Inputs: For the POM, information necessary to start this activity is contained in the Defense Planning Guidance (A1), Air Force Planning Guidance, the FYDP and the MAJCOM specific baselines, and the POM Planning Instructions. The USAF POM review process requires the POM submissions (C27) from the MAJCOMs. For the BES, results of the Summer Review, and the receipt of Program Decision Memorandums from OSD and the MAJCOM BES submissions (C27) are necessary. For a individual project, if a Requirements Summit (B15) has been convened, the results should be a useful input to the USAF review process.

b. Outputs: For both the POM and the BES, the output is the delivery of the Air Force approved documentation to OSD (A13).

10. KEY REFERENCES: The references below provide more specific implementation guidance:

a. AFP 172-4, The Air Force Budget Process, October 1987 - Describes the Air Force budget process.

b. DoDI 7045.7, Implementation of the Planning, Programming, and Budgeting System (PPBS), 23 May 84 - Describes the budget process within the Department of Defense.

11. IMPLEMENTATION TOOLS: "The PPBS Primer," 7th Edition, Jan 93. This document, while still "draft," is published by the Directorate of Programs and Evaluation, Department of the Air Force, and provides a valuable description of the current PPBS process. This is one of the few documents that describes the current process, and it does so in detail. Further, it defines the activity schedule for the development of the FY96 POM.

12. PLANNING GUIDANCE:

a. DURATION: After receipt of the MAJCOM POM inputs in the fall, Air Force works POM iterations through the following March. The BES activities occur from August through mid-September, when the approved documentation is delivered to OSD.

b. CONSTRAINTS: The primary constraints to this activity are the resource limitations placed on the Air Force by OSD, and the schedule limitations on management reviews inherent in the budget timetable.

c. RESOURCES: The POM deliberations in the Air Staff require intensive activity by the Resource Allocation Teams, AF/PE, SAF/FM, and the functional staffs to reconcile planning objectives and resources. The BES generation is also a major exercise, but is more limited, since it represents a financial repackaging of the approved Air Force program.

d. LESSONS LEARNED: During the Air Staff POM deliberations and reviews, it is important that the project manager keeps in close contact with the project representative(s) in AF/XO (and SAF/AQ, if someone has been identified). This is important to help resolve issues that may arise and to ensure that they fully understand all the pertinent aspects of the project and can defend the projected resource requirements. Also, development of the POM is a comprehensive and complex task, and the information requested can be expected to change with every submission. Therefore, the POM preparer in the project office needs to ensure that (s)he is not only in compliance with the formal tasking and the local budget staff instructions, but also satisfies the information and documentation needs of the Air Staff project representative.

e. BEST PRACTICES: After submission of the POM package, the project office should posture itself to be able to respond effectively to programmatic questions and be able to generate quantitative

answers to Air Staff requests to develop and price out program variations to the POM submission. The capability to generate quality "what-if" information, often within hours, is important, since the reconciliations and rankings to be performed by the Resource Allocation Teams may require modifications to the MAJCOM POM requests programs in terms of funding levels, quantities, schedules, or other programmatic aspects. If a project office is unable to provide necessary information in time to support the decision makers the project may not be supported, or may be approved with insufficient funding levels.

f. **TRAPS:** If the POM is the first for the project, the submission will be considered a "New Start," and identified as such. There may be additional documentation requirements and a higher level of review for these programs, since there is not an existing funding line. Due to this, the project office must be especially prepared to defend project requirements.

1. ELEMENT: B17, TBS 1.4.2.1, 1.4.2.3 (IFC 93-3)

2. ELEMENT TITLE: Review Acquisition Strategy Report (ASR), Request for Proposal (RFP), Source Selection (SS) Plan and approve Acquisition Plan.

3. ELEMENT OWNER(S): Deputy Assistant Secretary of the Air Force for Contracting (SAF/AQC).

4. ELEMENT STAKEHOLDER(S): Project/Program Managers/Teams, ASC/PK (Contracting Office), Buying Office Contracting Official (BOCO), Program Executive Officers (PEOs), Operational Users, HQ AF/XO, AFAE, DAC, ASC/CC, and/or PM depending on ACAT Level.

5. REQUIREMENT: The requirement for this review was established by Air Force Federal Acquisition Regulation Supplement (AFFARS) 5307.103-90.

6. PURPOSE/OBJECTIVES:

a. Purpose:

1) To allow the Air Force Acquisition Executive (AFAE) the opportunity to review the Acquisition Strategy Report (ASR) and the proposed request for proposal (RFP) for ACAT I and potential ACAT I programs prior to being forwarded to the USD(A) for final review and approval.

2) After the USD(A) review the purpose is review the Acquisition Plan.

b. Objectives:

1) To allow the AFAE the opportunity to review and comment on the ASR and RFP prior to being reviewed by the final MDA for ACAT I programs.

2) To obtain an AFAE approved Acquisition Plan following the USD(A) review and approval of the ASR and proposed RFP.

7. DESCRIPTION:

a. The Acquisition Strategy Report (ASR)(D58) and the Acquisition Plan (D66) are developed by the project team using the collective wisdom and guidance of senior DoD and Acquisition through the Integrated Acquisition Strategy Process (IASP). The Source Selection Plan (D62) is created by the RFP team using the Streamlining processes created and maintained by ASC/CYX. The goal is to have these documents reviewed (and in the case of the ASR, approved) by the USD(A). Enroute to the USD(A) review, the project will be required to navigate through a gauntlet of prebriefs culminating with SAF/AQ (B17). Following the approval of the Acquisition Strategy Report and a favorable review of the RFP and Source Selection plan by the USD(A), the entire package is returned to SAF/AQC, who will then provide it to the AFAE for final approval of the Acquisition Plan (B17). An approved Acquisition Plan is required by Federal Acquisition Regulations (FARs) prior to the release of a formal Request for Proposal (RFP)(D69). The review and approval of these documents also allow the project team to begin preparation of the functional plans and remaining milestone documentation (D60) necessary to enter into the final phase of the IASP-the Operational Roundtable (D67).

b. A portion of the ASC/PK Policy letter 92-040, "Review, Approval, and Authority Summary," 8 Sep 92 provides an excellent description of the rules and reviews concerning Acquisition Plans.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance into this process for the Air Force level review on the way up the chain occurs when the development community and the user community come together on the plan of attack for project/program. Once this is accomplished, you can put together an Acquisition Strategy Report (D58). At this point you have completed the majority of the CE&D technical activities and are focusing on "packaging" your findings. Entrance criteria for entering the AFAE review on the path leading back down the chain to the development community have been met when the USD(A) approves the Acquisition Strategy (A15) and provides a favorable review of the RFP and Source Selection Plan(A15).

b. Exit criteria have been met when the AFAE approves the project contracting approach for the next phase of the program which will allow for the release of the formal RFP (D69).

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Acquisition Strategy Report (ASR) (D58)--reviewed and approved by the Acquisition Strategy Panel (ASP) (D61).

(2) Request for Proposal (RFP) (as required)--the RFP should have already been through a Draft RFP process and be ready for formal release. (D64).

(3) Acquisition Plan--developed with inputs from the ASP approved ASR and the RFP (D66).

(4) Source Selection Plan--developed by the RFP team (D62).

b. Outputs: SAF/AQ approved Acquisition Plan (B17) -- which will allow the team to put its proposal on the street and begin the formal solicitation process (D69).

10. KEY REFERENCES:

a. DoDI 5000.2, Change 1, 10 Mar 93.

b. DoD 5000.2 Manual, Change 1, 10 Mar 93.

c. ASC/PK Policy letter 92-040, "Review, Approval, and Authority Summary," 8 Sep 92

d. DRAFT Air Force Supplement 1 to DoDI 5000.2, Aug 92

e. DSMC Program Manager's Notebook, Fact Sheet 1.6 (Jan 89)

11. IMPLEMENTATION TOOLS:

a. The templates contained in ASC/PK Policy letter 92-040, "Review, Approval, and Authority Summary," 8 Sep 92 provide an excellent review of the Acquisition Plan routing and signature requirements for the different acquisition types and categories. At this point in the acquisition flow only ACAT I programs or potential ACAT I programs are considered. (Non-DAB programs are also addressed in this policy letter and should be referenced for those programs.).

b. The ASC/YX Integrated process flow chart and the associated Process guide book provide an excellent graphic presentation of the activities which lead to this event and the best route to take.

12. PLANNING GUIDANCE:

a. DURATION: The actual SAF/AQ review and SAF/AQC follow-up review are only a day each.

b. CONSTRAINTS: TIME ! The real-world constraints have to do with the above-mentioned duration and timing -- lead-time for this event is considerable. If you use the "hypothetical" timeline included in the constraint block for A15 "USD(A) Review" you will be in good shape for operating within your constraints.

c. RESOURCES: The only resource required is a knowledgeable and highly polished briefing team. Be sure to take advantage of the facilities and resources available for the development of the Acquisition Plan through ASC/CYX. The functional home offices may be able to provide some "grey beard" type wisdom as well as some additional manpower in developing your Acquisition Plan.

d. LESSONS LEARNED: Bubble-up any issues and concerns that arise early in the development of the Acquisition Plan (for example , during the ASP). Don't hide the ugly things; eventually all the dirty laun , is reviewed. Try to have an Action Officer at the SAF/AQC level that the team can use as a sounding board.

e. BEST PRACTICES: This entire process was designed basically to prevent a large break in a program at Milestone II while they prepared the solicitation for the next phase. With the "institutionalization" of this process, it is now applicable at all the program level Milestones (I, II, and III). The process itself is a best practice. It is a less formal method of getting a "heading check" on the project/program direction without generating all the baggage that accompanies a full-up Milestone review.

(1) Do not view this review as another hurdle that the team must get by in order to continue on its way. Take full advantage of the review process. A "No" at this point is not the death nail it could have been at the Milestone review level.

(2) The earlier the project team engages with the action officers at the SAF/AQ and USD(A) levels the better. The more they know about how and why of the decisions the team has made, the fewer questions there will be remaining unanswered. This review process is an excellent opportunity to build a constituency -- don't blow this opportunity.

(3) Make the SAF/AQ Action Officers a part of the team and the decision-making process.

f. TRAPS: Failure to allow enough lead time. From the hypothetical schedule given in constraints area of block A15, this is a significant event and requires planning. Recommend this activity be addressed during the development of the Phase I plan and the IASP execution plan (D55).

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1. **ELEMENT:** B19, TBS 1.4.3.1 (IFC 93-3)

2. **ELEMENT TITLE:** Conduct AFSARC/DAB Planning Meeting (AF)

3. **ELEMENT OWNER(S):** SAF/AQXA

4. **ELEMENT STAKEHOLDER(S):** Operating Command, Product Center, Implementing Command, and PEO/DAC.

5. **REQUIREMENT:** DoDI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 13, Sections A and B. Describes the requirements and timeframes for the Planning Meeting, the Committee Memo, and the Master Planning Calendar.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of the meeting is to assess project progress toward satisfying Phase 0 exit criteria and minimum required accomplishments and the readiness of the project to proceed into Phase I. An Air Force Systems Acquisition Review Council (AFSARC) will be held for Acquisition Category (ACAT) I programs, any Joint programs for which the Air Force is lead, and ACAT II-IV programs as determined by the Secretary of the Air Force or the Air Force Acquisition Executive (AFAE). The only types of programs that usually do not go to the AFSARC but directly to the DAB are special access programs (i.e., the B2 program). For additional information regarding the Office of the Secretary of Defense (OSD) DAB Planning Meeting, refer to Data Sheet A23, Conduct DAB Planning Meeting.

b. Objectives: Documentation requirements will be confirmed, documentation plans will be assessed, and a detailed schedule of preparations set. Issues pertaining to the exit criteria and minimum required accomplishments arising from the assessment of project progress and documentation plans will be identified and documented in the Committee Memo (also known as Major Issues Guidance (MIG) Memo).

7. **DESCRIPTION:**

a. The AFSARC/Defense Acquisition Board (DAB) Milestone Review process begins with a planning meeting held at least 180 days prior to the DAB Milestone Review. There will be only one Planning Meeting held, depending on whether the acquisition is to go through the AFSARC and DAB or AFSARC only. The information required for this meeting is as follows:

(1) Draft Cost Analysis Requirements Document (CARD) (D72)

(2) Proposed Integrated Program Summary (IPS) Outline (D68)

(3) Status of progress toward satisfying exit criteria as defined in the Milestone 0 Acquisition Decision Memorandum (ADM)

(4) Status of progress toward satisfying the minimum required accomplishments as defined in DoDI 5000.2, Part 3, Page 3-8

(5) Any potential issues

(6) Schedule of efforts to be accomplished to get to the DAB

(7) Project status

(8) Status of all documentation needed for a Milestone I decision, based on the specific ACAT the project falls under

b. The planning meeting is chaired by the relevant AFSARC/DAB Committee Chair (or a representative) and will include representatives from each Committee principal and the DoD Component. The Project Manager may attend if desired by the Committee Chair.

c. As a result of the planning meeting, the Committee staff specialist prepares a Committee Memo for the Committee Chair's signature within 7 days of the meeting. This memorandum goes to the Under Secretary of Defense for Acquisition and to the AFAE and highlights the results of the assessment of project progress, and contains a recommendation as to whether or not the Milestone Review should be held as planned. It also identifies issues pertaining to the exit criteria and minimum required accomplishments that Committee members recommended be addressed in the project documentation for Milestone I (D68) in preparation for the Milestone I Documentation Review (B22). Also, as a result of this meeting, the CARD will be forwarded for the Component Cost Analysis effort (B21).

d. The Committee staff specialist also prepares a master planning calendar which can be used as a management tool throughout the Committee and AFSARC/DAB preparation process. This calendar is distributed initially with the Committee Memo and updated and redistributed to Office of the Secretary of Defense and DoD Component personnel throughout the process.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The process of planning for a Committee review is initiated by informal discussions between the Office of the Under Secretary of Defense for Acquisition and DoD Component personnel and by reference to the long-range schedule published by the AFSARC and DAB Executive Secretaries. This schedule identifies the requirement to conduct an AFSARC/DAB review based on project schedule, as modified by actual events and the availability of the participants.

b. Exit: The event is completed upon submission of the Committee Memo.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: Government and Contractor provide project status information (see Para 7.a)
Draft CARD (D72)
Proposed IPS Outline (D68)
Draft ORD I (C19)
Approved Acquisition Strategy (D68)

b. Outputs: Major Issues Guidance Memorandum (Committee Memo)
Master Planning Calendar
Updated CARD for CCA (B21)

10. KEY REFERENCES:

a. Air Force Acquisition Model (AFAM)

b. Draft AF Sup 1/DoDI 5000.2, Aug 92, Part 13A, Atch 1, Para 4.a. Further clarifies requirements for AFSARC/DAB Planning Meeting.

c. PEM/Action Officer Handbook, Apr 92, Paragraph B.4 and subs. Describes the AFSARC/DAB process.

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: Allow for 2 weeks preparation time to "test the waters" for current mood of the staff, current trends in direction/questions, and to gather up-to-the-minute current status on the project and known problems. Attendance is about one-half day in or outside the Pentagon. Follow-up until the Guidance Memorandum is signed.

b. CONSTRAINTS:

(1) Lack of current information on project status

(2) Project schedule slippages

(3) Generating a review schedule that can be supported by the parties involved

c. RESOURCES: The resources should include a conference room of appropriate size to accommodate the number of attendees for the Planning Meeting, an operating vu-graph machine and a back-up, an individual to flip the charts as the briefer presents his/her charts, and a secretary taking notes to ensure that all comments, questions, changes, etc., are adequately and clearly documented for the resultant memo that will be issued at completion of the meeting.

d. LESSONS LEARNED:

(1) In the area of AFSARC/DAB requirements, taskings, briefings, and other associated events, it is an absolute necessity to have control and authority over the process. It is imperative that personnel working AFSARC/DAB issues must become the experts and be proactive.

(2) Be sure the purpose of the AFSARC/DAB is clearly defined as to what is required by the Milestone Decision Authority (MDA).

(3) Don't go to the Planning Meeting without an Operational Requirements Document (ORD), documents in draft form, or an approved acquisition strategy.

e. BEST PRACTICES:

(1) Form a team to develop a strategy/plan to obtain a successful AFSARC/DAB resolution. This team should:

(a) Identify requirements for a Milestone AFSARC/DAB.

Create and track briefings to support DAB requirements.

(b) Resolve/close programmatic issues early.

Identify AFSARC/DAB issues and recommend solutions to SPO director.

(c) Prepare documentation to include pre-coordination with the OSD staff, the Air Staff, and other offices as appropriate.

Write and track AFSARC/DAB documentation.

(2) The F-22 SPO formed their DAB team 16 months prior to their Milestone Decision. Their team had three objectives: (1) develop a DAB documentation tracking system, (2) identify and resolve issues/concerns that could affect a successful Milestone DAB decision, and (3) keep the Program Director informed on all issues. Also, based on the timeline identified in Section 13A of DoD

5000.2, the F-22 SPO developed an internal schedule to track events/milestones leading up to the milestone DAB decision. This schedule proved to be an invaluable top-level planning tool to satisfy Milestone requirements.

(3) Attendance at the Planning Meeting by the Project Director is not required, but is allowed. It is highly desirable for the Project Director to attend because he/she has the knowledge of the full breadth of the program and may be able to answer specific questions which may avoid extensive written explanations on a "non issue." Therefore, it is recommended that the Project Director coordinate with appropriate parties to obtain authorization to attend planning meetings.

(4) There is an extremely large volume of point papers, briefing charts and documents to prepare. The Project Director should identify a senior (Lt Col or GS/GM-14), experienced (preferably Level III) acquisition manager as the full time OPR for the AFSARC/DAB preparation on his/her staff. That individual should also attend the Planning Meeting, if invited, and establish himself/herself with the appropriate action officer level at SAF and OSD. He/she must proactively interact with those action officers as the AFSARC/DAB process proceeds.

f. **TRAPS:** See Lessons Learned.

1. ELEMENT: B21, TBS 1.4.4.0 (IFC 93-3)

2. ELEMENT TITLE: Conduct Component Cost Analysis (CCA)

3. ELEMENT OWNERS: Air Force Cost Analysis Agency (AFCAA)

4. ELEMENT STAKEHOLDER(S): Air Force Cost Analysis Agency (AFCAA), SAF/FMC, ASD/PA&E (OSD), Operating and Implementing Commands, Product Center, and PEO or DAC.

5. REQUIREMENT:

a. DoDI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 10, Section A, Para 3.b and c. This defines requirement for component cost estimate.

b. Title 10, United States Code, Section 2434, Independent Cost Estimates. This describes the law as it relates to the CCA and is implemented by DoDI 5000.2.

6. PURPOSE/OBJECTIVES:

a. Purpose: Provide the Milestone Decision Authority (MDA) with an independent assessment of the proposed project cost.

b. Objectives:

(1) Test the reasonableness of Program Office Estimate (POE).

(2) Provide additional cost management information to the Air Force to support project decision events.

(3) Increase the confidence of the Air Force management, OSD, and the Congress in the cost estimate of the project.

7. DESCRIPTION:

a. The AFCCA financial cost team, which is independent of the project office, prepares the CCA estimates to test the reasonableness of all project costs, regardless of funding source or management control. This was formerly known as both the Independent Cost Estimate (ICE), and the Independent Cost Analysis (ICA). The scope of the estimate includes the project as currently planned and all cost categories, i.e., investment, appropriations, test and evaluation, procurement, military construction, operation and maintenance, and military personnel. The draft CCA covers at least the most significant parts of the estimate to the degree of completeness described in Part 10, Para 2.c. of DoD 5000.2-M. The project office must plan to provide the POE (D71) on schedule to the CCA team. The timing of this estimate is outlined in the CCA plan. The plan is developed by the CCA team with coordination by the project office. The project office is also required to document and provide the CARD (D72) information to the CCA team and the CAIG (B23). Members of the CAIG should keep in contact with the project office to resolve issues and help in support of data searches.

b. For estimates made by analogy or engineering costing techniques, the rationale and procedures used to prepare such estimates must be documented.

c. The CAIG serves as the Air Force group tasked to review the Cost Operational Effectiveness Analysis (COEA), the POE, and the CCA.

d. Actual cost experience on prototype units, early engineering development hardware, and early production hardware for the project under consideration should be used to the maximum extent possible. When cost estimating relationships (CERs) already available or newly developed CERs are used to make the cost estimates, the specific form of the CER, its statistical characteristics, and the assumptions used in applying the CER should be provided to the CCA team.

e. The CCA cost and technical information is input from the CCA through the CAIG to develope the Service cost position (SCP). The SCP may then be updated. Information from the Source Selection (D70) and the Requirements Summit (B15) are used as input and output for cost and technical background information. The POE (D71) is used for insight into program cost analysis and for the cost comparison of the POE to the CCA.

f. The AFSARC/DAB Planning Meeting (B19) inputs scheduling information into the CCA for planning and scheduling purposes since the CCA data is used in the AFSARC.

g. The information generated in the POE and CCA is briefed at the AF CAIG Review (B23) which assesses the validity of the numbers. The POE is briefed by the project office team and the CCA is briefed by the CCA team. The CCA and POE are then refined with recommendations from the CAIG.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Completion of the CARD (D72) is used as entrance criteria. The data in the CARD is used as background data to the CCA.

b. Exit: The draft CCA will be provided to the CAIG (B23) no later than 51 calendar days in advance of a scheduled DoD Component Milestone or project review.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The information from the CARD (D72) is used by the CCA team in the development of the CCA report. Cost information from the COEA (B15) and assistance from the project office in collecting cost information (D71) are needed for the CCA report.

b. Outputs: The CCA data is input into the CAIG for development of the Service Cost Position (SCP). The CAIG discusses the CCA data and their findings are then output into AFSARC (B24). This is the Air Force process that is required prior to a Milestone I DAB or acts as the Air Force approval process for non-DAB projects/programs. At this point in the process, since there has not been a program approval, the AFSARC is still dealing with a project or Phase 0 study effort. The AFSARC is convened to review ACAT I acquisition projects prior to any Milestone Decision by the DAB or prior to a program review by the Secretary of Defense. It is the Air Force review process which reviews all program documentation prior to going to the DAB. All three of these reviews essentially do the same thing, with different levels of review and decision makers in the process. They review all the program documentation to make a decision for program go-ahead or continuance.

10. KEY REFERENCES:

a. DoD 7750.5-M, Procedures for Management of Information Requirements, Nov 86, authorized by DoD Directive 7750.5, Management and Control of Information Requirements, 7 Aug 86. This relates to the proper procedures for handling the information generated in the CCA.

b. DoD 5000.2-M, Defense Acquisition Management Documentation and Reports, 23 Feb 91, Part 15. This defines procedures for the preparation and submission to the OSD CAIG of cost estimates prepared in support of DAB committee reviews for ACAT I D programs, and in support of DoD Component reviewers of ACAT I C programs.

c. DoD 5000.4, OSD Cost Analysis Improvement Group , 24 Nov 92, Chapter 2. Specifies the responsibilities and functions of the CAIG/CCA.

11. IMPLEMENTATION TOOLS:

a. The AFSC Cost Estimating Handbook, Volume I, Undated - Estimating and documentation information.

b. The AFSC Financial Management Handbook, Nov 92 - Update financial information.

c. AFMC Cost Estimating Handbook, Volume II, Aeronautical , 21 Sep 92 - Estimating and documentation information.

12. PLANNING GUIDANCE:

a. DURATION: It is estimated that it will take an average of 145 days to complete a CCA. This is from starting the outline to presenting it to the Program Element Monitor (PEM) The CCA can then be updated after it is looked at in the CAIG review.

Days before DAB	EVENT
145	A plan outlining the CCA will be submitted to the CAIG.
118	An internal mid-term review will be conducted to make final assessment of the methodology, data, and CCA plan.
62	The SPO and the CCA make presentations to the Program Executive Officer (PEO). They present the draft CCA and POE.
55	Draft cost documentation for the system POE and CCA are provided to the CAIG.
55	CAIG "shirt sleeve review" of POE and CCA.
51	SPO and the CCA team will present estimates to the CAIG.
35	CAIG presents SCP to OSD.

b. CONSTRAINTS: The CCA is tied to other milestones (see inputs and outputs) and especially the CARD which is needed 180 days before the DAB.

c. RESOURCES: This is a difficult estimate to make; it varies widely depending on size of the project. The CCA is handled at AFCCA in Washington, but since CARD data was used the project office may need to answer questions concerning the CARD. You will need access to all functional areas but will need a full-time FM person and also a full time project manager.

d. LESSONS LEARNED: There are two lessons learned in the Automated Lessons Learned Capture and Retrieval System (ALLCARS) data base on this item. The synopsis of the message is:

(1) Take all Office of Secretary of Defense Action Officers comments (OSD/AO) seriously, no matter how painful.

(2) Advocate a DAB OSD/AO working group in the Pentagon.

e. BEST PRACTICES:

(1) Provide the CARD on time so the DAB will not slip.

(2) Completing the CCA 2 months prior to the DAB will ensure the Air Force CAIG CCA Review report to the DAB, and Industries Proposals and Source Selection have time to digest the CCA report.

(3) Begin early to track details of the POE since differences will need to be explained during this process.

f. TRAPS: A must to this activity is a good CARD which will input good data giving a much more realistic CCA. If data is not accurate and complete to begin with, more time and effort will be needed to perform the CCA.

1. **ELEMENT:** B22, TBS 1.4.6.0 (IFC 93-3)

2. **ELEMENT TITLE:** Review Milestone I Documentation (Air Force)

3. **ELEMENT OWNER(S):** SAF/AQXA

4. **ELEMENT STAKEHOLDER(S):** SAF Functional Offices, Operating Command, Implementing Command, OSD, and Product Center.

5. **REQUIREMENT:**

a. DoDI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 13, Sections A and B. Describes the requirements, time-frame, and attendees for the Documentation Review.

b. SAF Order No. 20.6, Establishment of the Department of the Air Force Systems Acquisition Review Council (AFSARC), 23 Nov 81. This defines the SAF directed roles and responsibilities of the AFSARC.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The AF staff documentation review serves as the vehicle for identifying and reviewing major questions raised by the draft documentation, and any new developments since the planning meeting in preparation for the Air Force Systems Acquisition Review Council (AFSARC) for Acquisition Category (ACAT) I programs, any Joint program for which the Air Force is the lead, and ACAT II-IV programs as determined by the Secretary of the Air Force or the Air Force Acquisition Executive (AFAE). The only types of programs that usually do not go to the AFSARC but directly to the Defense Acquisition Board (DAB) are special access programs (i.e., the B2 program).

b. Objectives: To ensure that issues raised during the Planning Meeting (B19) are addressed prior to submission of the final documents (A19).

7. **DESCRIPTION:**

a. Prior to the Air Force Documentation Review, the Planning Meeting will have been completed and any issues documented in the Committee Memo (B19). Also, a list of the milestone documents that will be required for the Milestone Decision Authority (MDA) will have been forwarded to the Project Manager along with any issues pertaining to those documents (D68). The Cost & Operational Effectiveness Analysis (COEA) and the Operational Requirements Document (ORD) will have been reviewed and approved for ACAT I programs at the Requirements Summit (B15) and forwarded for inclusion in the Documentation Review.

b. The AF Documentation Review usually consists of the Program Executive Officer (PEO), Program Element Monitor (PEM), appropriate Air Staff functional offices, System Program Office (SPO), Project Manager, representatives from Project Office, and other Service Representatives (if Joint project). It is held approximately 14 calendar days before an AFSARC review.

c. The Project Manager begins the meeting with a summary briefing covering project technical content and risks, cost-effectiveness, threat, acquisition strategy, supportability and producibility, test plans and results, user requirements, and a status update since the AFSARC/DAB Planning Meeting (B19). The Project Manager should answer the concerns from the Planning Meeting during the review and through his/her briefing. For ACAT IC projects and below, the documentation slide in the project briefing must say each document has been completed. For ACAT ID projects, the documentation status chart in the project briefing does not have to say completed (final documentation due 10 days after AFSARC for AFAE approval). (See paragraph 9 for a list of required documentation.)

d. After completing the review, the results are documented in a Committee Memo and submitted within 5 working days to the AFAE. The Memo will identify major questions not answered at the Documentation Review and any major deficiencies and issues regarding the draft milestone documentation, and issues raised since the planning meeting. The Memo may also delete issues from the milestone documentation and the Project Managers briefing at the Committee Review, if it was agreed that the issue had been resolved. The final documents for ACAT ID projects, adjusted by the Project Manager to address issues identified at the Documentation Review, must be submitted not later than 10 days after the AFSARC for approval by the AFAE (A19). For ACAT IC projects or below, all documentation must be final before going to the AFSARC (B24).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: This activity begins upon receipt of draft documentation by the responsible functional offices within the Air Staff approximately 24 days prior to the planned AFSARC meeting. It is the responsibility of the PEM or Project Manager to get the documents to the right office in the Air Staff for review.

b. Exit: The results of the Documentation Review meeting are documented in a Committee Memo, which is prepared within 5 days after the review. Final, updated documents must be submitted for AFAE approval not later than 10 days after the AFSARC.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The following documents are to be submitted for AFSARC reviews:

ACAT I	ACAT II, III, IV
Operational Requirements Document (ORD) (B15)	ORD
System Threat Assessment Report (STAR) (A14)	System Threat Assessment
(STA)	
DIA Intelligence Report	Component Intelligence Report
JROC Assessment	
Integrated Program Summary (IPS) (D68)	IPS
Integrated Program Assessment (IPA)	IPA
Program Life Cycle Cost Estimate (PLCCE) (D71)	PLCCE
*Acquisition Program Baseline (APB) D51)	*APB
Integrated Logistics Support Plan (ILSP)	ILSP
*Test & Evaluation Master Plan (TEMP) (D68)	*TEMP
*Component Cost Analysis (CCA) (A17)	*CCA
CCA Report	
Cost & Operational Effectiveness Analysis (COEA) (B15)	COEA
System Concept Paper (SCP)	SCP
Pollution Prevention Action Plan (D68)	
Program Protection Plan (PPP) (D68)	
Draft Acquisition Decision Memorandum (ADM)	Draft ADM

*Required by Congress

b. Outputs: The product of the documentation review is a memorandum to the AFAE from the Committee Chair.

10. KEY REFERENCES:

a. Air Force Acquisition Model (AFAM)

b. PEM/Action Officer Handbook, Apr 92, Paragraph B.4 and subs. Describes the AFSARC/DAB Process.

c. Draft AF Sup 1, Aug 92, to DoDI 5000.2, Part 13, Section A. Shows the AFSARC/DAB planning guidelines/checklist.

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: Preparation for the briefing can take 2 to 3 weeks, with several people creating charts.

b. CONSTRAINTS:

(1) Inadequate preparation of documentation

(2) Not all documents submitted on time

c. RESOURCES: The resources should include a conference room of appropriate size to accommodate the number of attendees for the Documentation Review, an operating vu-graph machine and a back-up, an individual to flip the charts as the briefer presents his/her charts, and a secretary taking notes to ensure that all comments, questions, changes, etc., are adequately and clearly documented for the resultant memo that will be issued upon completion of the review.

d. LESSONS LEARNED:

(1) At the earliest possible date, ensure with the reviewing agency that there is an agreement as to what documentation is required.

(2) Be prepared to assist in the development of, guide the preparation of, research the requirements for, and review of all documentation for the AFSARC/DAB to ensure accurate and timely completion.

(3) If the draft documents are not received by OSD approximately 24 days before the review, or if the project members are not available on the scheduled date, then the AFSARC review may have to be postponed until the documentation status is determined. It is imperative that the Project Manager have his/her people begin working on the draft documents well in advance of the scheduled AFSARC review to ensure that they meet the schedule and avoid any slips in the overall project schedule.

e. BEST PRACTICES:

(1) To ensure that all documentation is properly prepared in accordance with OSD guidance/procedures while meeting the documentation schedule, individuals within the SPO should be assigned as OPRs for AFSARC documents. Ultimately, these individuals are responsible for the success or failure of the document even if they are not the author. The OPR should identify and resolve issues that could impact the document completion timeline.

(2) It would be beneficial to the project to identify individuals outside the project office to help advise and coordinate on Milestone AFSARC issues/documentation. This relationship would prove beneficial in obtaining a quick turnaround on AFSARC documents requiring OSD-level signatures, clarifying OSD and Pentagon issues/direction, and providing information to the project office.

(3) Have the AF PEO staff obtain recent examples of Documentation Review briefings and the questions of the various staff members. With good "intel" and a little "crystal ball" speculation, a single added chart to the briefing may head off a lengthy discussion

(4) Close liaison with the Pentagon action officers in the last few days before the documentation review can produce significant results to the Project Manager. Preliminary comments from the committee staff will be forwarded to the Air Force action officers as the staff prepares for the meeting. The Project Manager's briefing can be tailored at the last minute to address any known concerns. Again, work close with the action officer who prepares the Committee Memo to make sure it correctly documents closed issues and focuses in on a narrower scope Committee and AFSARC briefing. After any changes are made to the briefing charts stemming from any prebrief, limit any additional changes to an absolute minimum - no more than 3 to 4 slides. For often, just before the AFSARC, people start to get "nervous" and SAF/AQXA ends up with a new briefing while the read-ahead to the AFSARC members has already been distributed and then becomes "overcome by events." The briefings, when submitted, should be able to stand alone.

f. **TRAPS:** See Lessons Learned.

1. ELEMENT: B23, TBS 1.4.5.0 (IFC 93-3)

2. ELEMENT TITLE: Conduct Air Force Cost Analysis Improvement Group (CAIG) Review

3. ELEMENT OWNER: SAF/FMC

4. ELEMENT STAKEHOLDER(S): Air Force Cost Analysis Agency (AFCAA), SAF/FM, ASD/PA&E, Operating and Implementing Commands, Product Center, and PEO or DAC.

5. REQUIREMENT:

a. DoDI 5000.2-M, "Defense Acquisition Management Documentation and Reports,"23 Feb 91, Part 15, defines procedures for the preparation and submission to the Office of Secretary of Defense Cost Analysis Improvement Group for cost estimates prepared in support of Defense Acquisition Board (DAB) committee reviews for Acquisition Category I D programs, and in support of DoD Component reviews of acquisition Category I C programs.

b. Title 10, United States Code, Section 2434, Independent Cost Estimates; 10 Oct 86, Operational Manpower Requirements, this is the law which requires the CAIG.

c. DODD 5000.4, OSD Cost Analysis Improvement Group, 24 Nov 92, defines CAIG responsibilities and procedures.

6. PURPOSE/OBJECTIVES:

a. Purpose: The CAIG serves as the Air Force group tasked to review the Cost and Operational Effectiveness Analysis (COEA), the Program Office Estimate (POE), and the Component Cost Analysis (CCA). (This was formerly known as both the Independent Cost Estimate (ICE), and the Independent Cost Analysis (ICA).)

b. Objective: The CAIG develops the Air Force Service cost position, an additional estimate which reflects the position of Secretary of the Air Force.

7. DESCRIPTION:

a. Preparation for the Air Force CAIG is accomplished through both planning meetings and status reviews which are convened to ensure that all information needed during the formal CAIG review is accomplished on schedule and with the required quality. The Project Office must plan to provide the POE analysis on a schedule which is dovetailed with the Component Cost Analysis (CCA) (B21) plan. The Project Office is also required to document and provide the Cost Analysis Requirement Description (CARD) information to the CCA team and the CAIG. In addition to the formal status reviews, members of the CAIG should keep in contact with the estimating team to resolve issues and help in support of data searches. No later than 55 days before the formal CAIG review, CAIG representatives perform a "shirt sleeve review" which is a detailed analysis of the estimates prior to the CAIG. The shirt sleeve review should take a minimum of 1 day.

b. In the beginning of the formal CAIG briefing, there is normally a program overview by the project manager. The project manager should be able to present programmatic aspects of the project. The COEA is reviewed to ensure the proper decision was made on the preferred alternative, and the POE of the preferred alternative is presented for review, followed by the CCA. If all questions are not answered during the review, follow-up will be required from one or all estimating teams. At the end of the review an additional estimate is developed by the CAIG which represents the CAIG's projection of program costs. This is called the Service Cost Position (SCP), and is submitted to the Secretary of the Air Force for approval. After this review, necessary changes will be performed to the CAIG estimate prior to the formal CAIG briefing. After the approval, the CAIG may direct the COEA to be updated with the SCP values and reaccomplished to assure the COEA outcome doesn't change. The output of the CAIG will be reviewed by the Air Force Systems Acquisition Review Council (AFSARC). The AFSARC (B24) is the Air Force corporate body that advises the AFAE on the acquisition of major systems. There are 11 permanent AFSARC members and 3 advisors. The AFAE, the Assistant Secretary of the Air Force (Acquisition), chairs the AFSARC.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: When the AFSARC scheduling group schedules an AFSARC, it starts preliminary activities on the CAIG. Receipt of cost documentation is needed for CAIG review. The entrance block will be the Component Cost Analysis which is B21.

b. Exit: Development of the SCP after review of CCA & POE. Data from this block will go into B24 for AFSARC review.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: CCA (B21), CARD, POE and COEA (D48) are the main data inputs.

b. Output: The output is the Service Cost position, which gives approval to submit COEA, CCA and POE to the AFSARC (B24)

10. KEY REFERENCES:

a. DoD 7750.5-M, Procedures for Management of Information Requirements, Nov 86, this short regulation defines the management of the CAIG information.

b. DoDI 5000.2, Part 13, Defense Acquisition Management Policies and Procedures, 23 Feb 91.

11. IMPLEMENTATION TOOLS:

a. Air Force Acquisition Model (AFAM).

b. For Cost Estimating documentation, see SAF/FM "Cost Estimating Documentation Checklist," 16 Nov 92, and OSD CAIG "Operating and Support Cost Estimating Guide," May 92.

12. PLANNING GUIDANCE:

a. DURATION: A typical CAIG briefing will last around 2 hours; 1 day for prebrief. DoDI 5000.2, Part 13, Section C, provides a rough agenda. The following is a timeline showing the major events preceding an AF CAIG review:

Days before AF CAIG / Days before DAB	Event
152	An Air Force CAIG planning meeting.
145	A plan outlining the CCA will be submitted to the CAIG.
118	A mid-term review will be conducted to make final assessment of the methodology, data, and CCA plan.
62	The SPO and the CCA presentations to the PEO.
55	Draft cost documentation for the system POE and CCA are provided to the CAIG.
55	Shirt sleeve review of POE and CCA.
51	SPO and CCA team will present their estimates to the CAIG.

b. CONSTRAINTS: The CAIG CCA review is tied to other milestones (see Inputs and Outputs) and especially the Cost Analysis Requirement Description (CARD) which is needed 180 days before the DAB to start the CCA activity.

c. RESOURCES: At least one analyst should be assigned to monitor CCA/POE/COEA activities and resolve issues. One to five analysts could be expected to work the project as a primary duty after receipt of the documentation until completion of the SCP.

d. LESSONS LEARNED: There are no lessons learned on CAIG CCA review, but there are two applicable lessons learned in the Automated Lessons Learned Capture and Retrieval System (ALLCARS) data base on CCA. The synopsis of the message is:

(1) Take all comments of Under Secretary of Defense Action Officer (USD/AO) seriously, no matter how painful.

(2) Set up a DAB OSD/OA working group in the Pentagon.

e. BEST PRACTICES: When the DAB is scheduled, the project office, AFCAA, AF CAIG, and OSD CAIG representatives should meet as soon as possible to ensure that the estimate to be presented to the CAIGs will satisfy requirements and have the same ground rules, assumptions, scope, etc.

f. TRAPS: A must to this activity is a good CARD that will provide good data for the CCA and POE development. Also, if data is accurate and complete, less time and manpower will be needed to develop the CCA information necessary for the CAIG. If the CARD is not provided on time, the DAB may slip.

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1. **ELEMENT:** B24, TBS 1.4.7.0 (IFC 93-3)

2. **ELEMENT TITLE:** Conduct Air Force Systems Acquisition Review Council (AFSARC)

3. **ELEMENT OWNER(S):** Air Force Acquisition Executive (AFAE), SAF/AQX

4. **ELEMENT STAKEHOLDER(S):** Air Force Acquisition Executive(AFAE) , SAF/AQX, Operating Command, Implementing Command, Product Centers, PEO, and DAC.

5. **REQUIREMENT:**

a. SAF Order No. 20.6 "Establishment of the Department of the Air Force Systems Acquisition Review Council (AFSARC),"23 Nov 81. This defines the SAF directed roles and responsibilities of the AFSARC.

b. SAF/AQ Memorandum for AFSARC members, 17 Apr 93. This covers who will present information to the AFSARC.

c. DoDI 5000.2, Part 11, Section C. This delineates the documents required for Milestone Reviews.

d. AF Sup 1/DoDI 5000.2 Part 13 Section A, Atch 1 Aug 92. This section covers the basic procedures that the AFSARC will follow.

6. ***PURPOSE/OBJECTIVES:***

a. Purpose: The AFSARC process implements DoDI 5000.2, Section 11-C, for AFAE review of ACAT I programs, any Joint program for which the Air Force is the lead, and ACAT II-IV programs as determined by the Secretary of the Air Force (SAF) or the Air Force Acquisition Executive (AFAE). This block describes an Air Force process that is required prior to a Milestone I DAB or acts as the Air Force DAB for non-DAB projects/programs. At this point in the process, since there has not been a program decision, the AFSARC is still dealing with a project or Phase 0 study effort. The AFSARC will be dealing with this project to determine if it should become a program. All references to program in this section are generic references and may be considered potential programs or study projects. The AFSARC is convened to review ACAT I acquisition programs prior to any milestone decision by the Defense Acquisition Board (DAB) or prior to a program review by the Secretary of Defense. It is the Air Force review process which reviews all program documentation prior to going to the DAB. The AFSARC functions as the DAB for all Air Force programs that are less than ACAT I.

b. Objective: The AFSARC is convened to review ACAT I acquisition programs prior to a milestone decision or prior to a program review by the Secretary of Defense. It is the Air Force review process which reviews all program documentation prior to going to the DAB. The AFSARC is held for all Air Force programs that are less than ACAT I and Service managed ACT I programs. The AFSARC is held in addition to both the Summit and DAB reviews. All three of these reviews essentially do the same thing; they review all the program documentation to make a recommendation for or the actual decision for program go-ahead or continuance. The only difference between the three is the level of review and the decision authority of the participants. Also, Summits are not always held and are not necessary at any particular time. Therefore, Summit reviews are held when neccessary.

7. DESCRIPTION:

a. The AFSARC is the Air Force corporate body that advises the AFAE on the acquisition of major systems. There are 11 permanent AFSARC members and 3 advisers.

Chair: The AFAE, who is the Assistant Secretary of the Air Force (Acquisition), chairs the AFSARC.

Members: Assistant Secretary of the Air Force (Financial Management and Comptroller)
Assistant Secretary of the Air Force (Space)
Assistant Secretary of the Air Force (Manpower, Reserve Affairs, Installations, and Environment)
Vice Chief of Staff
Deputy Chief of Staff (Personnel)
Deputy Chief of Staff (Plans and Operations)
Deputy Chief of Staff (Logistics)
Deputy Chief of Staff (Test and Evaluation)
Director of Programs and Evaluation
Commander, Air Force Operational Test and Evaluation Center
Commander, Air Force Test and Evaluation

Advisors: General Counsel
Assistant Chief of Staff for Intelligence
Director of Strategic, SOF and Airlift Programs

b. The AFSARC also has an Executive Secretary (SAF/AQX) responsible for administrative support to the AFSARC. The Executive Secretary is responsible for scheduling AFSARC meetings and prebriefs, publishing the AFSARC planning schedule, distributing read-ahead material to the Committee members, publishing AFSARC meeting agendas and approved attendance lists, guidance on AFSARC policy and procedure, and coordinating Air Force participation in the DAB.

c. For definition purposes, SAF/AQ or the AF organization responsible for the Program Element Monitor (PEM) function is designated as the "Sponsoring AFSARC Member."

d. The AFAE may convene an AFSARC for the following reasons: 1) to review acquisition programs prior to Milestone Decisions or prior to Program Review by the Secretary of Defense or the DAB; 2) to review programs when nominated for review by an AFSARC member and approved by the AFAE; 3) as requested by the AFAE; and 4) as directed by the Secretary of the Air Force. In this case the AFSARC is convened to look at a Phase 0 study effort to determine if it should become an Air Force or DoD program. There are three type of AFSARC meetings - Milestone Meeting, Program Review, and Principals Meeting. The Milestone Meeting is discussed here. The Program Review is a special meeting called by the AFSARC when they deem it necessary to review a specific program. Details of that meeting are subject to the needs of the potential program or project review at the time. The Principals Meeting is a closed door session of the members only. It is called to discuss procedures, issues, etc.

e. AFSARC meetings are approved by the AFAE. Members and advisors are notified of meetings by the Executive Secretary. A listing of all planned AFSARCs is published every 4 months.

f. Milestone AFSARCs will only be waived by the AFAE. The AFAE is the decision authority for special requirements, operating procedures, and abbreviation or waiver of documentation requirements.

g. Procedures - For potential DAB programs, a Joint OSD-AF planning meeting (Block A23) will be held approximately 6 months before the planned milestone. This will be scheduled by OSD. At this planning meeting the project director, PEM (if there has been one assigned), or acting PEM should present the program status, proposed IPS outline for approval, the Cost Analysis Requirements Description (CARD), the potential issues and schedule of efforts to be accomplished prior to the

AFSARC. In accordance with OSD CAIG requirements in DoDD 5000.4, the program will submit a CARD through SAF/AQ for presentation at the planning meeting (Block B23).

h. Attendance. Only AFSARC members and advisors or their representatives are allowed to attend the AFSARC. Other attendees are at the written invitation of the AFAE. Normally the project/program manager will be invited to brief the AFSARC. The sponsoring AFSARC member will provide recommendations for other attendees to the Executive Secretary at least 5 days prior to the AFSARC meeting.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance:

(1) Prior to an AFSARC, all necessary documentation must be prepared (B22 and B23). The sponsoring AFSARC member is responsible to ensure all required documentation and special reports are submitted at least 6 working days before the AFSARC.

(2) For ACAT I programs the AFSARC is normally held 5 weeks before the DAB review. Other AFSARC meetings will be held as determined by the AFAE. However, it is the responsibility of the sponsoring member to ensure the AFSARC is scheduled for those programs that will only require an AFSARC (non-DAB programs).

b. Exit: For non-DAB programs the AFSARC sponsoring member will prepare an Acquisition Decision Memorandum for the AFAE signature within 5 working days. For DAB programs the sponsoring AFSARC member will update the IPS to include AFSARC findings, coordinate within the Air Staff, and provide it to the DAE within 10 working days (B25, A16, A17, and A18).

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The documentation requirements for an AFSARC are the same as for the upcoming Milestone Review. For Milestone I these are (from DODI 5000.2):

ACAT I	ACAT II,III,IV
ORD	ORD
STAR	STA
DIA INTELLIGENCE REPORT	COMPONENT INTELLIGENCE REPORT
JROC ASSESSMENT	
IPS	IPS
IPA	IPA
PLCCE	PLCCE
APB AGREEMENT	APB AGREEMENT
ILSP	ILSP
TEMP	TEMP
CPSW	
ICE	ICE
ICE REPORT	
COEA	COEA
ADM	ADM

All the above documentation must be consistent and coordinated within the appropriate agencies prior to the AFSARC. As some of these are living documents, the best available data is required. Drafts are acceptable for those documents that are approved after the AFSARC meets (i.e.,TEMP). See block B22 Review Milestone I Documents (Air Force).

b. Outputs: The output of the AFSARC is either an ADM for non-DAB programs or, for DAB programs, an updated IPS that goes to the DAB along with all the other required documentation. For non-DAB programs, the sponsoring member will prepare an Acquisition Decision Memorandum (ADM) through the AFSARC Executive Secretary, for signature by the AFAE within 5 working days after the AFSARC review. For DAB programs, the sponsoring member will update the IPS to include AFSARC findings, coordinate within the Air Staff, and provide to the DAE within 10 working days.

10. KEY REFERENCES:

a. SAF Order No. 20.6 "Establishment of the Department of the Air Force Systems Acquisition Review Council (AFSARC)," 23 Nov 81, defines the SAF directed roles and responsibilities of the AFSARC.

b. SAF/AQ Memorandum for AFSARC members, 17 Apr 93, covers who will present information to the AFSARC.

c. DoDI 5000.2, Part 11, Section C, delineates the documents required for Milestone Reviews.

d. AF Sup 1/DoDI 5000.2 Part 13, Section A, Atch 1, Aug 92, covers the basic procedures that the AFSARC will follow.

e. DoDI 5000.2, Part 7, Section A, describes the logistics support required.

11. IMPLEMENTATION TOOLS: AFSARC/DAB Planning Guidelines summarize the steps normally required for each milestone. Contact SAF/AQX for this document (DSN 225-5973).

12. PLANNING GUIDANCE: The AFSARC/DAB Planning Guidelines/Checklist has the schedule of events that are required prior to an AFSARC. Essentially the process starts 6 to 7 months prior to a DAB with an AFSARC planning meeting with multiple follow-up meetings and reviews prior to the DAB. See the planning guidance for detailed information.

a. DURATION: The AFSARC/DAB Planning Guidelines summarize the steps normally required for each milestone. Contact SAF/AQX for this document.

b. CONSTRAINTS: Major constraint for the AFSARC is getting the program documentation ready in time and in the proper format. Another constraint is the briefing itself. This normally requires numerous changes and practice briefings. Ensure you allow sufficient time prior to the actual AFSARC meeting to get all the pre-briefs accomplished (see Section e Best Practices).

c. RESOURCES: All functional disciplines must be involved with this process. The number of person hours required varies with the program but will be high. There are no special security, facility, or computer resources required other than those normally required for the project to this point.

d. LESSONS LEARNED: Contact the SAF/AQX office for the latest guidance on lessons learned. The AFSARC is highly dependent on the politics of the country, the current administration, the perceptions of the leadership in DoD, and the personalities sitting on the Council. As such it is imperative that the program office contact the SAF/AQX office to get the latest guidance prior to putting the AFSARC brief together.

e. BEST PRACTICES: Prebrief the members of the AFSARC if possible but at a minimum prebrief their staffs to get any show-stopper questions out of the way prior to the actual AFSARC.

f. TRAPS: Not using the current briefing format. Not having all the data required by the numerous documents required for the AFSARC. Not being totally honest and aboveboard with not only your good points but also the problems you anticipate.

1. **ELEMENT:** B25, TBS 1.4.12.2 (IFC 93-3)

2. **ELEMENT TITLE:** Write and Issue Phase I PMD

3. **ELEMENT OWNER(S):** SAF/AQXA

4. **ELEMENT STAKEHOLDER(S):** AF/XOR, Operating Command, Other SAF/AQ 4- Ltr Offices, AF/IN, Implementing Command, Product Center, PEO, and DAC.

5. **REQUIREMENT:** AFR 800-1, Air Force Acquisition System, 16 Feb 90, Paragraph 3.a. Defines the requirement and point of contact for Program Management Directives (PMD)s.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of the PMD is to direct programmatic responsibilities to major command, field, and test organizations for systems development, modification, or acquisition in broad terms. PMDs originate within the Headquarters (Secretariat and Air Staff) and are coordinated with all outside implementing, participating, operating, and test agencies.

b. Objectives: The intent of the PMD is to integrate all activities which affect the life cycle of an acquisition. All Air Force acquisitions are required to have a complete and current PMD.

7. **DESCRIPTION:**

a. Once the Milestone Decision Authority (MDA) makes a decision to proceed with Demonstration/ Validation, an Acquisition Decision Memorandum (ADM) is issued in accordance with DoDI 5000.2, Parts 11B and 11C (A22). For non-Defense Acquisition Board (DAB) programs, the Air Force Systems Acquisition Review Council (AFSARC) sponsoring member will prepare an ADM for Air Force Acquisition Executive (AFAE) signature (B24). Upon receipt of the ADM from the MDA, the appropriate Air Staff Office (e.g., SAF/AQX) issues a PMD to the assigned lead and support centers (AFMC) which clearly identifies the user requirement(s), those agencies whose efforts are required for successful completion of the Phase I activities, and all integration responsibilities related to the primary system being discussed (D75 and D79). PMDs will include the following information:

(1) Assignment of Implementing, Participating, Operating Commands and Test Agency.

(2) Identification of requirements documents (i.e., Operational Requirements Document (ORD)) and related documents (i.e., Threat, Defense Planning Guidance (DPG), etc.).

(3) Designation of the Program Executive Officer (PEO)/Designated Acquisition Commander (DAC) who is responsible for the project. A PEO is normally designated for major programs. A DAC is normally designated for less than major programs. Evaluation of programs occurs on an annual basis to determine what programs are considered major programs. OSD releases a draft list each Spring for the Services to review. As a result of the Services' comments, the major program list is finalized and released by OSD. Because PEOs are designated for specific mission areas, and DACs have designated areas of expertise, most programs will fall within a particular individual's responsibility. Therefore, it is possible for a project manager to determine the applicable PEO/DAC even prior to a PMD being released by determining whether or not an effort is classified a major program and then determining who is responsible for that area.

(4) Provide project specific information such as:

(a) Resource priority rating

(b) Additional constraints (beyond those in MNS, e.g., Nuclear survivability)

(c) Authority and deviations

(d) Critical interfaces and force integration issues

(e) Arms Control Treaty verification

(f) Project short title

(g) Resources (financial and manpower)

The above information may or may not apply to your study effort or project. If one of the areas does not apply, it is sufficient to include the heading and a brief statement "This section does not apply."

(5) Identify funding amount and source.

(6) Direct development/update of required program plans.

(7) Identify responsible program participants.

(8) Identify required documentation and schedule considerations for the next Milestone.

(9) Establish review and coordination procedures for next milestone decision.

b. If the decision from the MDA affects any programs already under development, then the PEOs or Program Element Monitors (PEMs) who are responsible for those programs need to be involved to ensure that their PMDs are changed to support ADM tasks.

c. The PMD is not a budgetary document and provides no obligation (funding) authority. However, a PMD will not be issued unless the project has planned funding or prior year funding which is identified in the President's Budget (PB) and Future Years Defense Program (FYDP), plus a validated ORD.

d. The PMD is coordinated with all major command level organizations tasked with direction prior to being coordinated throughout the headquarters. It is the responsibility of the originating office to ensure full and complete distribution of the final document in accordance with the mandatory distribution list in SAF Headquarters Operating Instruction (HOI) 800-2, Attachment 6. In addition to this list, the originating office creates a project specific distribution list for organizations listed in the PMD. At the very least, this list will be comprised of the Implementing Command, MDA, Project Director, and any headquarters and field offices tasked in the PMD.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: This activity starts with the issuance of an ADM by the MDA (B24 and A22).

b. Exit: Issuance of the PMD to the appropriate agencies (D75 and D79).

9. KEY INPUTS AND OUTPUTS:

a. Inputs: ADM (A22 and B24)

b. Outputs: PMD (D75 and D79)

10. KEY REFERENCES:

a. SAF HOI 800-2, Policy and Guidance for Preparing Program Management Directives, 1 Jan 93 (Still in Draft). Details all policy, procedures, and documentation requirements for completing and coordinating PMDs and includes sample formats for the various types of PMDs.

b. Air Force Acquisition Model (AFAM)

c. Automated Lessons Learned Capture and Retrieval System (ALLCARS)

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: The PMD is issued upon receipt of the ADM. Subsequent PMDs will be issued within 45 days after the annual submission of the President's Budget (PB), or at another Milestone Decision.

b. CONSTRAINTS: The PMD cannot be issued unless all issues, including funding, are resolved. The funding approval in the ADM provides the funding input for the initial PMD, which is current at the time the PMD is issued.

c. RESOURCES: It takes at least 90 days to write/update, coordinate, and issue the PMD. This includes 40 working days for coordination with outside organizations.

d. LESSONS LEARNED: Loosely written or generic program direction for initiative-type efforts is unacceptable. The Project Manager must work with the PEM to convince him/her to establish specific tasks and Milestones within the PMD. Accepting PMD or other direction without specific tasks and associated Milestones can create a funding dilemma.

e. BEST PRACTICES:

(1) Close coordination between the acquisition office, the user, and the originating agency while writing the PMD can help prevent problems later. It is important that the PMD be analyzed prior to release in order to identify areas of responsibility, appropriate OPRs and to determine executability of the PMD.

(2) Direct reference to functional issues in program directives (ORD, PMD, etc.), program strategy documents and program baselines forces attention on these matters early in the program life cycle. This allows input from the users and the logistics managers in the earliest stages possible to prevent downstream problems.

f. TRAPS: A poorly written or inappropriate PMD can direct designs/solutions or program schedules prematurely. In these cases the acquisition office must get back to the originating agency to relieve/loosen the direction, preferably during the coordination process.

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1. ELEMENT: C1, TBS 0.1.4.0 (IFC 93-3)

2. ELEMENT TITLE: Conduct Mission Area Assessment (MAA)

3. ELEMENT OWNER(S): Operating Commands, Air Staff

4. ELEMENT STAKEHOLDER(S): AF/XO, Joint Chiefs of Staff (JCS), and Field Operating Agencies (FOAs).

5. REQUIREMENT: DOD Instruction 5000.2, "Management Policies and Procedures," Part 4, "Requirements Evolution and Affordability," Section B, "Evolutionary Requirements Definition."

6. PURPOSE/OBJECTIVES:

a. Purpose: To identify current tasks that achieve mission objectives required to support the strategy outlined in the Defense Planning Guidance (DPG).

b. Objectives: By utilizing a strategy-to-task evaluation process, the Air Staff, Operating Commands and FOAs define the tasks to be accomplished by Air Force assets that support the military strategy provided by the Chairman of the Joint Chiefs of Staff (CJCS) and the Secretary of Defense (OSD). The Air Force conducts annual Mission Area Assessments (MAAs) on selected mission areas.

7. DESCRIPTION: The CJCS's military strategy is outlined in the National Military Strategy (NMS) Document and the Defense Planning Guidance, with the Air Force's contribution documented in the Air Force Planning Guidance. The Operating Commands and FOAs review their taskings, assigned missions, and concept of operations (CONOPS - C2) for the various regional plans that assign specific military objectives for Air Force assets. The Operating Commands and FOAs continually evaluate these plans and JCS guidance for changes in their assigned missions and objectives that may have an impact on tasks that must be accomplished (C4, C5). The outcome of the MAA is used as a resource for subsequent Air Force Planning Guidance publications. The following step is to perform a Mission Need Analysis (MNA) to determine the Operating Command or FOA capability to accomplish the assigned tasks (C3, C5). The Operating Commands and FOAs utilize a task-to-need process in conducting the MNA to evaluate their ability to accomplish these tasks (C3, C6).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Periodic review of Air Force executive guidance as contained in the Air Force Planning Guidance (B1)

b. Exit: Mission area task list ready for Mission Need Analysis (C3)

9. KEY INPUTS/OUTPUTS:

a. Input Documents — Source

National Security Strategy	President (A1)
National Military Strategy	CJCS (A1)
Defense Planning Guidance	CJCS (A1)
Joint Strategic Capabilities Plan	CJCS (A1)
Air Force Planning Guidance	SAF, CSAF (B1)

b. Output - Operating command / FOA mission task list published in the Air Force Planning Guidance

10. KEY REFERENCES: DODI 5000.2, Section 4B; Air Force Instruction 10-601, "Mission Needs and Operational Requirements Guidance and Procedures," paragraph 1.1.3, "Mission Area Assessment."

11. IMPLEMENTATION TOOLS: One principal source for the strategy-to-task breakdown philosophy is a document (title unknown at this time) published by the Rand Corporation and authored by Gen Glenn Kent (USAF, Retired).

12. PLANNING GUIDANCE:

a. DURATION: Periodic assessments of mission roles and capabilities are not entirely new to the Air Force, although the "strategy-to-task" hierarchy is a recent application to be used in the approach. Since the MAA is primarily an Operating Command responsibility, the framework for this type of an approach is still being established across the restructured Operating Commands, where experience and background are fairly limited. A nominal timeframe for this activity is 2-3 months for execution.

b. CONSTRAINTS: There are several factors that have an influence on the perceived importance of (and support to) this activity: the timing of the most recent publication of the DPG, NMS and AFPG; the relative stability of the perceived threat, national strategy and/or Operating Command operations; and the level of effort(s) being devoted to identified critical mission needs, developed from previous years' efforts.

c. RESOURCES: Key participants or players in this effort should come from the Operating Command Planning, Logistics, Acquisition and other functional divisions, Air Staff (i.e., USAF/XOR), FOA Plans and Programs Divisions, and Theater Commands. Support may be requested from the Supporting and Implementing Commands as needed.

d. LESSONS LEARNED:

1. Each Operating Command must maintain a clear and consistent perspective of the Department of Defense mission areas and respective designators.

2. Must be careful not to identify tasks that are based on force structure or its capability, which is done in the MNA.

e. BEST PRACTICES: Get staff inputs to planning directorate early and use formal sessions to document the MAA.

f. TRAPS: The content of the DPG, NMS and AFPG guides the MAA process. Significant changes in national strategy or interests have major ripple effects throughout the MAJCOMs.

1. **ELEMENT:** C-2,TBS 0.1.5.0 IFC 93-3

2. **ELEMENT TITLE:** Develop Concept of Operations (CONOPS)

3. **ELEMENT OWNER(S):** Operating MAJCOM

4. **ELEMENT STAKEHOLDER(S):** Theater Commander-In-Chiefs (CINCs), HQ USAF, and Government, Industry Studies and Analysis Organizations.

5. **REQUIREMENT:** DOD Directive 5000.1, Defense Acquisition, 23 Feb 91

6. **PURPOSE/OBJECTIVES:**

a. **Purpose:** To describe the Operating Command approach (in the CONOPS document) to the deployment, employment, and operation of a new or upgraded system or capability that they are advocating to meet identified tasks or missions.

b. **Objectives:** To identify and document the operational factors in a CONOPS in a manner that they are:

(1) Considered in the Mission Need Analysis (MNA);

(2) Used as a key to determining the Mission Area Assessment (MAA);

(3) And, eventually become the core for the Operational Requirements Document (ORD) and the Cost and Operational Effectiveness Analysis (COEA).

7. **DESCRIPTION:**

a. CONOPS describes characteristics and/or capabilities in support of mission need analyses and evolutionary requirements definition. It addresses operational structure, capabilities, employment, basing, and interoperability of operational forces systems or part of a system. This concept is broad in application and may require more specific description in follow-on documents. In most cases, the CONOPS should be considered in the MNA and eventually becomes an integral part of the ORD and COEA. The CONOPS is also a key document used in preparation for the Requirements Summit.

b. Concept development normally falls into two broad categories: operational and system.

(1) An operational concept involves the use, employment, and deployment of military organizations, operations, or fielded systems. Operational concept documents are broad in scope and provide the operating MAJCOM a coordinated position to aid a commander in understanding a particular mission or operational area application. The CONOPS can significantly impact combat capability. The operational concept is a key document used in determining the MAA and MNA in the Pre-Concept Exploration phase.

(2) A system oriented concept relates directly to the development of a specific system, component, or piece of equipment and is used to describe the need, intended use, and required support as the system/equipment progresses through the acquisition cycle. Concept development for acquisition purposes is defined by AFI 10-601, paragraph 1.1.8. The system concept will evolve from the operational concept as more specific information becomes available. The system CONOPS will be used in developing the ORD in the Concept Exploration phase.

c. A CONOPS is an integral part of the acquisition program documentation process. Draft concepts normally are not released outside the Department of the Air Force or other participating Services due to

potential source selection sensitivity and the possibility information may be misinterpreted or changed. Following its approval and inclusion of recommended revisions, a published concept document may be released to other government and nongovernment agencies who are authorized to receive such information and have a valid need to know. The operating MAJCOM also has the option to have industry assist in developing the CONOPS. Operating MAJCOMs must clearly state the constraints they want placed on the review and distribution of a concept document. Multi-command, multi-Service, and Joint concept document initiatives require concurrence of all users before the concept document is released.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Work can begin on the CONOPS as soon as the Air Force Planning Guidance (B1) is received from the Secretary of the Air Force and the Air Force Chief of Staff.

b. Exit: When an approved CONOPS document has been completed. This is used as the source to conduct deficiency analyses (C6) for the purpose of identifying capaility needs and timing using task-to-need methodology.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Review Air Force Defense Planning (B1). This input is used to ensure the capabilities and attributes of airpower are incorporated into various strategy documents, e.g., CONOPS.

(2) Conduct Mission Area Assessment (MAA) (C1). The MAJCOMs and Field Operating Agencies (FOAs) review taskings and update assigned missions under the CONOPS. The results are subsequently published in the next Air Force Planning Guidance.

(3) Conduct Mission Need Analyses (MNA) (C3). If a nonmaterial alternative is identified, the CONOPS will be modified.

b. Output: Conduct Deficiency Analysis (C6). The Operational Command is responsible for ensuring that Deficiency Analyses are conducted on a recurring basis. The results are provided back to CONOPS, but essentially are a result of updates to the CONOPS. Conduct MAA (C1) may be revisited if CONOPS changes are deemed necessary prior to release to C6.

10. KEY REFERENCES: AFI 10-601, entitlied "Oprational Requirements, Mission Needs and Operational Requirements Guidance and Procedures," 16 Feb 93, paragraph 1.1.8.

11. IMPLEMENTATION TOOLS: None Identified.

12. PLANNING GUIDANCE:

a. DURATION: A properly coordinated document from initial assignment to approval and publication may require up to a full year to complete. Such factors as complexity, level of coordination and approval, etc., determine the developmental time lines.

b. CONSTRAINTS: Since a MAJCOM Operating Standard for developing the CONOPS has not been published, written CONOPS preparation instructions and/or guidance is unavailable.

c. RESOURCES: HQ AFMC and MAJCOMs will expend approximately 45 to 135 days (which equates to between 360 to 1080 hours) to draft, finalize, and coordinate the CONOPS. This time is broken down as follows: (1) Work to be accomplished by a dedicated action officer will require from 30 to 120 days (which equate to between 240 to 960 hours) and (2) Work to be accomplished by three parttime MAJCOM individuals for approximately 7 days (which equates to approximately 120 hours).

d. LESSONS LEARNED: The MAJCOM will write a CONOPS prior to starting the MNA process because CONOPS type inputs are integral to the "strategy-to-task" process explained in AFI 10-601. History reveals that this effort was not previously implemented early on in the acquisition process. The "breaking of new ground" will require new and innovative approaches. Since the CONOPS provides essential inputs to the MNA, the inability to establish the CONOPS assumptions and groundrules early, may cause the MNA identified needs and deficiencies to become suspect.

e. BEST PRACTICES:

(1) Define in broad terms the operational CONOPS early to form the basis in determining the MAA and MNA.

(2) MAJCOMs should work jointly with HQ AFMC to ensure the user concept of operations has been adequately determined and defined.

(3) MAJCOM should develop operational CONOPS from existing CINC war planning documents and defense planning guidance. MAJCOM must be careful not to include any system concept at this point in time.
The system CONOPS will describe the intended use of new concepts as the acquisition process proceeds through the Concept Exploration phase.

(4) Operational factors form the core of the CONOPS and are used for COEAand ORDs.

f. TRAPS: None Identified.

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1. ELEMENT: C3, TBS 0.1.7.0 (IFC 93-3)

2. ELEMENT TITLE: Conduct Mission Needs Analysis (MNA)

3. ELEMENT OWNER(S): Operating Command

4. ELEMENT STAKEHOLDER(S): Air Staff, MAJCOMs, FOAs, AFMC, and Wargamers at Service schools.

5. REQUIREMENT: DODD 5000.1, Defense Acquisition Management Documentation and Reports, Feb 91, Part 2B2. This directive contains the requirements generation of the mission needs.

6. PURPOSE/OBJECTIVES:

a. Purpose: The MNA objective is to evaluate Air Force ability to accomplish identified tasks and missions using current and programmed forces. This process is called "task-to-need."

b. Objective: To identify both materiel and nonmateriel alternatives to mission needs.

7. DESCRIPTION:

a. The MNA process evaluates the ability of current and programmed forces to accomplish the tasks identified during the mission area assessment (MAA), (C1). The result is a list of potential shortfalls or needs, (C6) that are assessed for nonmateriel alternatives, (C7), and then, if none are found, fed into a mission needs statement (MNS), (C12). It's important to note that it is common to have a combination of both materiel and nonmateriel alternatives for the same shortfall. The MNA assesses the strengths and weaknesses of a military force when confronting a postulated threat, (C5), in a specified scenario or set of circumstances (such as force structures, geographic location, and environmental conditions). If the results of the analysis show that these forces are adequate to accomplish the goals, no further analysis is necessary.

(1) The scenarios should include a set based on situations that conform to the scenarios in the Defense Planning Guidance (DPG). That is, the underlying analysis assumptions concerning the threat, as well as those concerning US and allied involvement, should not conflict with the assumptions in the DPG scenarios. All relevant situations in the DPG scenarios should be addressed in the analysis. US force availability should be consistent with any deployment or reinforcement objectives included in the scenarios or established elsewhere in the DPG.

(2) Alternative cases may be considered when they would contribute to the analysis. In these instances, the variance from the DPG scenarios must be clearly identified and addressed.

(3) Whatever scenarios are selected, the MNA must show how current or future programmed systems would contribute to accomplishment of MAA tasks or a national military mission established by the DPG.

b. The MAJCOMs may obtain studies and analysis support from various agencies (D4 and D7). Regardless of the source of the analysis, the focus remains in the capability to accomplish the tasks. If a solution involves new hardware or software (a materiel solution), the mission need is documented in a MNS. If a nonmateriel alternative is identified, then the concept of operations has to be modified (C2).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Completion of the tasks identified during the Mission Area Assessment (C1).

b. Exit: When an operational shortfall or materiel need is identified.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) During mission area assessment (MAA) (C1), tasks have been identified using the strategy-to-task framework.

(2) Develop concept of operations (CONOPS), (C2)

(3) Determine force structure, threat, and study groundrules and assumptions, Identify Study Inputs (C5).

b. Outputs:

(1) If a nonmateriel alternative (C7) is identified, a revisit to CONOPS is recommended for further evaluation (C2).

(2) When a materiel need is identified, a MNS (C12), is required.

(3) If, after the deficiency analysis (C6), an operational shortfall is not found, then a review of the mission area plans (C4) is suggested.

10. KEY REFERENCES:

a. AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, paragraphs 1.1.4 and 1.1.6, the planning process and evolutionary requirements definition.

b. AFPD 10-6, Mission Needs and Operational Requirements, 19 Jan 93, paragraph 1.3, operational requirements to assess all nonmateriel solutions.

c. DODI 5000.2, Defense Acquisition Management Policies and Procedures, 26 Feb 93, Part 4, Section E, procedures for developing the mission need analysis.

11. IMPLEMENTATION TOOLS: None identified

12. PLANNING GUIDANCE: See data sheets C6, C7, D4, and D7 for more details

a. DURATION: Not Identified.

b. CONSTRAINTS: See detail data sheets.

c. RESOURCES: See detail data sheets.

d. LESSONS LEARNED: See detail data sheets.

e. BEST PRACTICES: Nonmateriel alternatives should be examined in depth. Too often the desire for a materiel solution causes a superficial examination of nonmateriel alternatives.

f. TRAPS: See detail data sheets.

1. **ELEMENT:** C4, TBS 0.1.2.0 (IFC Revision 93-3)

2. **ELEMENT TITLE:** Review Mission Area Plans

3. **ELEMENT OWNER(S):** Major Commands (MAJCOMs)

4. **ELEMENT STAKEHOLDER(S):** Operating Commands and Implementing Commands, AFSAA, HQ USAF/XO, SAF/AQ, Product Centers, Logistic Centers, Service Schools, and Industry.

5. **REQUIREMENT:** DODI 5000.1, Defense Acquisition, 23 Feb 91, Part 1, Para A.1. This directive provides the general framework for Operational involvement in stating mission needs and obtaining affordable programs which is the basis of reviewing mission area plans.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this activity is to ensure that adequate resources (people and money) are available to support the mission area planning process.

b. Objective: It is during this activity that the MAJCOM determines what mission area planning will be required, which agencies/organizations need to be involved in the mission area planning process and what funding is needed to support any study and analysis effort.

7. **DESCRIPTION:** In preparation for mission area planning, a number of activities are occurring concurrently within a Major Command (MAJCOM). As a result, there are several action officers assigned within the Command to support these activities. These activities include two approaches to the requirements process. The first approach, "technology push," is where the user identifies a requirement based on a technological opportunity. The second approach, "requirements pull," arises from any source when a deficiency or problem is known but the solution is unclear. Both of these approaches are supported by activities of the Technical Planning Integrated Product Teams (TPIPTs), of which the MAJCOM is an essential player. Other activities include the identification of any necessary support (dollars and people) to accomplish the mission area planning activities. Resources can be drawn from inside the Command as well as from other DoD agencies and industry. Finally, the MAJCOM defines the need for any advisory groups necessary to oversee the mission planning and requirements activities. The Study Advisory Group (SAG), which is a senior advisory group comprised of experienced personnel from different Commands, performs this necessary function. Each of these activities (technology push, requirements pull, TPIPT involvement, support identification, and SAG support) is described below.

Technology Push

In the technology push approach, MAJCOM requirements are identified based upon technology which is available to support mission needs (D5). This technological availability can be existing technology that has been developed by the DoD laboratories or industry. However, technology can also be developed to solve user deficiencies through TPIPT activities by focusing funding within industry and the government laboratories to address user needed technology versus other projects (D3). During this activity, action officers are assigned to oversee these activities.

Requirements Pull

The requirements pull process results from the mission area assessment (C1) and mission need analysis (C3). It begins when the Air Force planning guidance is identified in the Defense Planning Guide (Block A1) and in the Air Force Regional Plans (B1) and supports deficiency analysis (C6). During this activity, action officers are assigned to oversee these activities and frequently industry is tasked to conduct studies and analyses (D3).

TPIPT Involvement

TPIPTs are networks of experts from the Implementing and Operational Commands who plan and facilitate the transition of technical solutions to users' long-term operational needs. TPIPTs facilitate the initial planning and development leading to technically superior solutions to both the long-and short-term operational needs of the users. A typical TPIPT should consist of a network of development planners, Operational Command users, technology planners from Air Force laboratories, logistics center planners, system engineers, and representatives from test organizations, program offices, and intelligence agencies. TPIPTs are organized by mission or functional area to gather, analyze, coordinate, and disseminate information in each Air Force mission area. Each product, logistics, and test center may have several TPIPTs organized according to applicable mission areas and led by development planners in XR.

The objective of the TPIPT is to provide development planning support for users through the development of road maps and investment recommendations for all Air Force mission areas. TPIPTs will gather, organize, analyze, and disseminate information relating user requirements to technology development and transition for current and future systems and for support infrastructure.

Each TPIPT will be assigned specific functional or mission areas of responsibility and will provide to decision makers an integrated 20-year mission area system-technology roadmap to include a proposed investment strategy. Each TPIPT will also serve as the functional area focal point for urgent user needs. The responsibilities of the TPIPT include:

- Conducting or identifying required analyses to assist the users in developing strategic plans to meet their needs.

- Gathering, assessing, organizing, and disseminating information on technology available from other Services, other government organizations, industry, and foreign governments.

- Assessing test capabilities within each mission area.

- Assisting program offices with technology transition planning throughout the entire system life cycle.

- Assisting in the planning of technology investments for products, materiel, industrial base infrastructure, and application of technology to fielded systems.

- Defining needed intelligence products focused to support research planning efforts.

- Developing and using effective metrics to measure the quality of the technology transition processes.

In fulfilling their overall purpose, the TPIPTs will perform the following functions:

- Provide system-technology road maps.

- Promote the flow of information.

- Assist in technology development planning.

- Assist in technology transition planning.

- Recommended analysis and evaluation tasks.

- Assist users in conducting Mission Area Assessments (MAAs) and Cost and Operational Effective Analyses (COEAs)

- Ensure development and maintenance of databases to support the system-technology road aps.

TPIPT Products:

- Technology Investment Recommendation Report (TIRR).

- Mission Area Development Road map (MADR)-Appendix to Air Mobility Master Plan.

Product Center XRs will act as TPIPT facilitators by developing a coordinated TPIPT charter that describes the operations and functions of all TPIPT members and their relationship with other center organizations, other TPIPTs, and other external organizations. AFMC/XR is the OPR for TPIPTs and will publish guidance as required.

As of 29 May 92, TPIPTs have been established at four Product Centers: ASC, HSC, ESC, and SMC. The following TPIPTs have been established at ASC: Air Superiority, Air-to-Surface, Special Ops Forces, Mobility, and Training.

Support Identification

During this activity, the MAJCOM must determine what mission area analyses will be required, when they will be accomplished, who will accomplish the analyses (internal resources, the TPIPT team, industry, the laboratories, Product Centers or Logistics Centers, and/or the Air Force Study Board), and what funding will be required to support needed studies and analyses.

The MAJCOM may request study and analysis support from various outside resources to aid them in evaluating their ability to accomplish required mission tasks. In Aeronautical Systems Center, Development Planning (ASC/XR) is responsible for performing any required studies and analyses in support of a MAJCOM for these pre- Milestone 0 activities. However, XR may request support from any of the laboratories or existing SPOs. Outside resources may also become involved based on their initiatives (versus request for support from the MAJCOM.) For instance, a laboratory may develop a new technology. Sharing this technology with the Using Command may result in the Using Command generating a mission need statement (MNS) and/or a request for PE 65808 funding for studies and analyses. Alternatively, industry may approach a laboratory or the Using Command with a new product or technology which may also result in a MNS and/or a request for PE 65808 funding for studies and analyses. Finally, any of the product center XR organizations as a part of their developmental planning may identify a need or technological opportunity which could generate a need for low level internal studies and/or a request for PE 65808 funding for studies and analyses.

Other resources can include the Air Force Studies and Analyses Agency (AFSAA), the Deputy Chief of Staff, Plans and Operations (HQ USAF/XO), the Assistant Secretary of the Air Force for Acquisition (SAF/AQ), wargamers at Service schools, Product Centers, and Air Logistic Centers. Participation/support requested from these outside resources may involve informal requests for information or formal contracted efforts for studies and analyses. In selecting outside resources, the MAJCOM will use their knowledge that a particular agency/organization specializes in or has experience with a particular activity making that agency/organization a candidate for discussion/support.

In order to accomplish MAA and MNA (development planning), funding is needed to support the required studies and analyses (unless the effort is being conducted within the MAJCOM with existing personnel and no additional funding is required). Funding for the development planning process comes from two sources: the formal development planning process and the MAJCOM appropriated funds.

The development planning program process is an annual exercise intended to provide a prioritized, multi-year, program for all Air Force development planning activities. AF/XOR is the Program Element Monitor (PEM) for Program Element (PE) 65808F and is responsible for the development planning process. The process has three distinct phases: (1) proposed study development, (2) prioritization, and (3) integration. (See IFC Block C9, Preliminary Phase and Program Budget Requests, for budget impacts/considerations.)

Around 1 March of each year, AF/XOR sends a message to the Using Commands and HQ AFMC calling for study topics for the next 4 years. The proposed topics are evaluated and prioritized by an O-6 level steering group chaired by AF/XOR in early July of the same year. The outcome of this process is multi-year PE 65808F program with funding levels identified by project. The process also leads to a 4 year program linked to the biennial Planning, Programming, Budgeting System (PPBS) cycle. This annual process provides a single program that simultaneously includes inputs for the next year's execution program, current Fiscal Year (FY) + 2 Budget Estimate Submission (BES) cycle, and current FY + 3 Program Objective Memorandum (POM) cycle.

AFMC/XR "Program Management Plan for PE 65808F Development Planning" goes into a lot more detail on how the process works, who is involved, and when events are scheduled to occur. It also outlines the format used to propose study topics. You should be able to obtain a copy of the "Program Management Plan for PE 65808F Development Planning" from your local XR office.

When appropriate, MAJCOM funding may be used to supplement and leverage the Air Force Development Planning funds. (Development Planning funding is limited, approximately $10 million in FY94.) Typical MAJCOM funding sources include SPOs, labs, Using Commands, NASA, ARPA, and acquisition support funds.

SAG Support

Finally, the MAJCOM needs to assess the need for a senior advisory group called the Study Advisory Group (SAG). The purpose of the SAG is to provide oversight and direction to ensure that the Operating and Implementing Commands and the decision makers operate in concert. The SAG should consist of representatives from the principal organizations of the Operating Command staff and representatives from the Implementing and Support Commands, SAF/AQ, SAF/FM, USAF/XOR, AFSAA, and others as required. SAGs can be formed very early pre-MS 0 in order to review the MAJCOM roadmaps and provide advice to the MAJCOM Commander. They may also be planned to support activities associated with approved Mission Need Statements (MNSs). The SAG is responsible to review the COEA effort at the following points in the process:

-- Completion of the COEA plan prior to the Phase 0 analysis.

-- Completion of the phase 0 COEA analysis prior to submitting the results to the Milestone I Review.

-- Completion of the updated COEA plan prior to the Phase I analysis

For major efforts, the SAG will probably review the alternatives selected for inclusion in the analysis. For projects requiring a significant, long-term analytical effort, the SAG will probably conduct a review at about the midpoint of the analysis. At some point after a favorable Milestone 0 decision, a Concept Action Group (CAG) is formed.. The CAG will then be guided by the SAG or assume the responsibilities of the SAG (in which case the SAG would be abolished). In the event the SAG is discontinued, members of the SAG may and should be selected as members of the CAG in order to maintain continuity.

8. ENTRANCE/EXIT CRITERIA:

Entrance: Activities associated with mission area planning are cyclical activities. Requirements are evaluated annually as a part of the Air Force Planning Guidance. In addition, PE 65808 data calls occur annually and the POM process occurs every 2 years.

Exit: These activities identify the resources (people and funding) that will evaluate the force structure, and threat/study groundrules and assumptions in support of MAA. Industry involvement in MAA and MNA is also initiated by the action officers assigned under this activity.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Defense Planning Guide (Review National Defense Planning, A1).

(2) Air Force Regional Plans (Review Air Force Planning Guidance, B1).

(3) MADPS.

(4) TIRRs.

b. Outputs:

(1) Agreements with an Air Force Agency and/or Industry to support mission area assessment and mission need analyses.

(2) SAG Charter.

10. KEY REFERENCES:

a. AFMCP 173-1, AFMC Cost & Operational Effectiveness Analysis (COEA) Handbook , 30 Dec 92, Chapter 3 (especially para. 3.2), which describes the formation and functions of the SAG.

b. AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, Para. 1.1.2, which defines the Air Force role in the national planning process.

c. "Requirements Planning," Lt Gen Thomas R. Ferguson, Jr., USAF, and Terrence J. Hertz, Air University Journal, Summer '90, which addresses the requirements and acquisition processes.

d. Guide to the Technology Master Process, 30 Oct 92, prepared for AFMC/DPUL by TASC of Fairborn, Ohio, which covers the background, description, objective, and implementation of the TPIPT process.

e. AFPD 10-6, Mission Needs and Operational Requirements, 19 Jan 93, Para. 1.1-1.6, which defines the MNS and COEA.

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: The process is a cyclic process which begins each year with the release of the Air Force Plans and/or via the TPIPT process..

b. CONSTRAINTS:

(1) Support from resources (internal and external to the MAJCOM) will be constrained by the availability of funding and manpower available to support the effort.

(2) The past few years congressional staffers have approved PE 65808F plans on a line-for-line basis. If an item or study is scratched by these staffers, the associated funding is also eliminated from PE 65808F.

c. RESOURCES: Several TPIPT action officers will need to be identified within the MAJCOM to support all activities associated with this data element. At least one individual from the implementing command will need to be a member of the SAG to ensure concerns of the implementing command are addressed. This person will need to keep functional specialists apprised of the position of the SAG so that acquisition activities can be accomplished in accordance with the SAG guidance. Funding, manpower, facilities, and equipment requirements will vary each year based upon the magnitude of the mission area planning task.

d. LESSONS LEARNED: While the SAG is formed to direct the studies and analyses activities, caution should be exercised in the execution of their direction. The MAJCOM Commander has final approval and the SAG is basically an advisory body.

e. BEST PRACTICES:

(1) To maintain continuity, members of the SAG should be reassigned to the CAG whenever possible if the SAG is dissolved

(2) It is beneficial to have the SAG review the MAJCOM roadmap before the TPIPT applies resources toward specific technologies.

(3) For projects requiring a significant, long-term analytical effort, the SAG should conduct a review at about the midpoint of the analysis. A review of the alternatives selected for the analysis may also be included for major efforts. Reviews should also be conducted to resolve issues that are hampering the study effort.

(4) Get the intelligence community involved early. Consider having the Defense Intelligence Agency (DIA), HQ USAF/IN, and AFIC participate in planning the analysis.

(5) Constraints and assumptions are factors that limit the set of viable alternatives to be considered. They should be carefully defined and stated explicitly. Progress sometimes comes from finding that a presumed constraint, such as personnel, funding technology, or supportability does not actually exist or can be easily accommodated with simple actions.

f. TRAPS:

(1) A lack of Implementing Command representation on the SAG could result in decisions on the part of the MAJCOM which are not affordable or executable within the acquisition process.

(2) While in theory the requirements pull approach is a good approach, many times in reality the intent of the approach is not followed. Instead of evaluating potential alternatives, there is a tendency to concentrate on a predetermined solution.

(3) Conflict exists between the requirements process and the budget process. The PPBS and annual congressional approval activities corrupt the entire concept of incremental milestone planning because they require the military to budget for a "program" at or before Milestone 0. You need a wedge

for post-MS I activities into the POM as early as possible. However, the "program" is not approved until MS I.

(4) MAJCOMs and other agencies using industry cost data should take care to ensure that total program costs are reflected, since most industry cost estimates do not consider many Government costs such as integration, test, data, etc.

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1. **ELEMENT:** C5, TBS 0.1.6.0 (IFC 93-3)

2. **ELEMENT TITLE:** Identify Study Inputs

3. **ELEMENT OWNER(S):** Operating Commands

4. **ELEMENT STAKEHOLDER(S):** Supporting and Implementing Commands, Product and Logistics Centers, Intelligence Community, Laboratories, and Industry.

5. **REQUIREMENT:** DOD 5000.1 (Part 1, para B2; Part 2, paras B1and B2, paras D3a and D3b), DOD 5000.2 (Part 4, Section B, para 3a), AFI 10-601 (para 1.1.4) and AFPD 10-6 (para 1,2-1.3).

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this activity is to provide a common MAJCOM defined framework for the Mission Need Analysis (MNA).

b. Objectives: The objectives are to provide a basis for:

(1) Realistic operational constraints (boundaries) for use in the MNA.

(2) Agreement and understanding among all parties including other DOD and Air Force agencies as well as industry.

(3) Facilitating an apples-to-apples comparison of alternatives to identify Operating Command needs and potential concept solutions.

7. **DESCRIPTION:** To accomplish the above purpose and objectives a number of steps need to be taken:

a. Obtain Force Structure data from MAJCOM focal point in XP, DO or XR .

b. Obtain operational concepts/constraints from MAJCOM action officers.

c. Define a threat package by requesting support from the Air Force Intelligence Community, the National Air Intelligence Center (NAIC) and the Operating Command Intelligence office for the timeframe of interest. (The Product Center Director of Intelligence (DI) is the focal point for obtaining Intelligence community support (ASC/NAIC/TIA for ASC.)

d. Develop groundrules and assumptions via the participation of all key players, that is, the MAJCOM, Supporting Commands and agencies, and the analysts conducting the studies. Iterate the groundrules and assumptions with the analysts to ensure that a tractable analyses capability exists and that an affordable and timely analyses can be conducted.

8. **ENTRANCE/EXIT CRITERIA:**

a. Entrance: Since Force Structure definition is a cyclical activity within the MAJCOM planning organizations, this activity can start at any time.

b. Completion or termination of this activity can occur upon starting the MNA, after the MNA is underway, or if the Operating Command or Air Force decides against conducting an MNA.

9. KEY INPUTS AND OUTPUTS: There are a number of inputs/outputs to this activity and they include:

a. Inputs:

(1) Defense Planning Guidance (C1) - defines framework or context.

(2) Operating Command Mission Area Plans (C4) - specifies force structure.

(3) Concept of Operations (C2) - describes use of force structure.

(4) Intelligence Documents (B2) - describes threat to the force.

(5) Constraints (groundrules, assumptions, and conditions) that are requisites for running Campaign, Mission, Engineering Supportability Analysis computer models (D4) - identifies tractable, affordable and timely analysis capability

b. Outputs:

(1) Decision on scope of analysis to conduct the Mission Needs Analysis (C3).

(2) A data package containing all of the necessary detailed information for conducting the Mission Needs Analysis, which includes running the aforementioned computer models (C3).

10. KEY REFERENCES:

a. DOD 5000.1 (Part 1, para B2; Part 2, paras B1 and B2, paras D3a and D3b), evolutionary requirements definition, requirements generation system, Defense Planning Guidance.

b. DOD 5000.2 (Part 4 Section B, para 3a), evolutionary requirements definition procedures.

c. AFI 10-601 (para 1.1.4) - variety of analytical methods used in this "task to need" process called a Mission Need Analysis (MNA).

d. AFPD 10-6 (paras 1.2 and 1.3), mission deficiencies will be identified via mission/capability assessment.

11. IMPLEMENTATION TOOLS: Threat Environment Description (TED), Defense Planning Guidance, Operating Command Roadmaps, and TPIPT Mission Area Development Plans.

12. PLANNING GUIDANCE:

a. DURATION: Dedicated 30- to 60-day effort. Program Development (ASC/YX) involvement consists primarily of reviewing the MNA results. Based on the ASC/XR-ASC/YX Memorandum of Agreement (MOA) another criteria for Program Development involvement would be an Operating Command decision to initiate a program quickly. This activity would be completed upon coordination of a data package, the document containing the force structure, groundrules and assumptions, by the element owners and stakeholders.

b. CONSTRAINTS: A number of potential constraints exist and they include:

(1) lack of access to pertinent classified information

(2) timely availability of documents

(3) intelligence documents that do not cover the timeframe of the analysis

(4) lack of identified/dedicated focal points and availability of personnel with right skills

c. RESOURCES: Primary personnel resources will consist of participants from the Operating Command, Intelligence community, Product Center XR analyst and TPIPT members. Minor ASC/YX participation may be accomplished via TPIPT membership. Travel funds and secure facilities may also be needed.

d. LESSONS LEARNED: This must be a team effort and all players (Operating Command, Product Centers, Intel Community, and analyst) must buy-in. If agreement and buyin is not achieved up front, the effort will be challenged and may have to be reaccomplished. Establish a "grassroots" Working Group early on.

e. BEST PRACTICES: Talk to the ASC/XRE Multirole Forces Project (MRFP) team about their activities during 1991 - 1992. Work with OSD PA&E to get early buy-in on the approach, ground rules and assumptions. A data package containing all of the necessary detailed information for conducting the Mission Needs Analysis (MNA) should be written for coordination by all of the key players. Since this package provides the basis for assessing capabilities of current systems during the MNA, it could appropriately be called a "Capabilities Assessment Package" (CAP).

f. TRAPS: If the groundrules and assumptions are not consistent with the Defense Planning Guidance (DPG), OSD PA&E will not support the findings. Furthermore, the follow-on analyses will be questioned unless inclusion of the appropriate special access technologies have been assumed.

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1. ELEMENT: C6, TBS 0.1.7.1 (IFC 93-3)

2. ELEMENT TITLE: Conduct Deficiency Analyses

3. ELEMENT OWNER(S): Operating Commands

4. ELEMENT STAKEHOLDER(S): Office of Secretary of Defense, Joint Chiefs of Staff, Secretary of Air Force, Air Force Materiel Command (AFMC), Product Center XRs, Aeronautical Systems Center (ASC), ASC/YX, Industry, and Laboratories.

5. REQUIREMENT:

a. Air Force Policy Directive 10-6, 19 Jan 93; Air Force Instruction (AFI) 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Jan 93, Pages 2-4.

b. DoDI 5000.2, Defense Acquisition Directive, Part 4, Section B.

6. PURPOSE/OBJECTIVES:

a. Purpose: Deficiency analyses are conducted on a continuing basis, in response to changing Air Force Planning Guidance, AFPG (Service peculiar planning document developed in element B1 in response to the Defense Planning Guidance, DPG) and Mission Area Assessments, MAA (C1), to evaluate Air Force ability to accomplish those tasks and missions using current and programmed forces.

b. Objectives: Deficiency analyses involves conducting campaign level analyses of the defined forces, evaluating their ability to accomplish theater objectives and identifying any deficiencies that are found. This activity is typically accomplished with the support of Product Center XRs (D4).

7. DESCRIPTION:

a. The Deficiency Analysis represents the first set of activities in a process known as the Mission Needs Analysis (MNA). The focus of the MNA is on assessing the capabilities of current and programmed forces to conduct operations, achieve the goals (missions and tasks), and consequently overcome the identified threat (B2) (established in the regional scenarios defined in the MAA, C1) and identify operational shortfalls and needs. The Deficiency Analysis employs a task-to-need evaluation process to identify operational shortfalls (deficiencies) in the current and programmed forces and force structures. Campaign analyses are the principal tool used to accomplish these task-to-need assessments. If the results of the campaign analyses show that the forces are adequate to accomplish the goals, no deficiencies are identified and the activity is suspended until revised tasks and missions are generated in the MAA. If deficiencies are identified, then follow-on campaign analyses are conducted to assess nonmateriel solutions or combinations of nonmateriel and materiel solutions to resolve the deficiencies.

b. The Operational Command is responsible for ensuring that Deficiency Analyses are conducted on a recurring basis in response to updates to C1, C2, and C4. The Operational Command has the freedom to contract for Deficiency Analyses (campaign analyses) support; The Product Center XRs are typically the suppliers of choice for conducting these analyses (D4).

c. Operational shortfalls (deficiencies) are identified through (computer) simulations of conflicts involving US, allied and enemy forces. Force structures, concepts of operations, geography, environment, target(s), force locations and force element capabilities must be identified for both sides in the conflict in order to conduct the campaign analyses. Warning time, deployment decision time and start of conflict information are critical parameters that are defined for all forces in place and those available for deployment from other Services and allied countries. Performance (our ability to achieve

identified tasks and accomplish required missions) is predicated on an evaluation of the simulation results against predetermined Measures of Merit (MOMs). Failure to meet operational objectives (missions/tasks) is an indication of potential deficiencies (operational shortfalls). Operational shortfalls are evaluated using continuing campaign level analyses to determine whether a materiel need exists or whether nonmateriel alternatives are available (change in doctrine, operational concept, tactics, organization or training). This analysis is documented in the Operational Shortfalls (Deficiencies) Report.

8. ENTRANCE/EXIT CRITERIA: This activity begins when the strategy-to-task framework is established and total force projections and concepts or operations are identified. It is complete when it has been determined that deficiencies do or do not exist and a report containing this information is approved.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Mission definition (tasks) and force projections (C1).

(2) Concept of Operations (C2).

(3) Threat information (B2).

b. Outputs: The results of campaign analyses are documented in the Operational Shortfalls (Deficiencies) Report and provided to the MAJCOM (C4 and C7). Outputs include:

(1) Description of scenarios.

(2) Assumptions and constraints.

(3) Potential Deficiencies.

10. KEY REFERENCES: Air Force Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93.

11. IMPLEMENTATION TOOLS: Deficiency analyses are performed using models (computer based simulations) that describe the interaction of forces at the campaign level and assess performance in terms of predetermined measures of merit.. The results indicate potential deficiencies, not solutions.

12. PLANNING GUIDANCE: Prior to campaign analyses to identify deficiencies, the analysts must be familiar with the concept of operations and defined missions (tasks). Scenarios for the simulated conflict are constructed (identified) based on this input information (constraints and assumptions must be clearly defined) and analytical tools are tailored to account for specific operational concepts, force structures and defined scenarios. The strategic information documented in the DPG/AFPG and the tasks identified in the specific mission area must be made available to the performing activity to ensure that a thorough evaluation is conducted and proper constraints and assumptions are applied.

a. DURATION: It typically takes a minimum of 6 months to conduct a campaign level deficiency analyses. For complex study efforts (missions and tasks involving the interaction of multiple systems and force structures), the deficiency analyses may take a year or more.

b. CONSTRAINTS: It is the responsibility of the Operating Command to ensure that the scenarios conform to the DPG and that all assumptions regarding the threat and US and allied involvement (mix) are identified and appropriate. All relevant situations in the DPG/AFPG scenarios

should be addressed in the analysis. US force availability should be consistent with any deployment or reinforcement objectives included in the scenarios and established in the DPG/AFPG.

c. RESOURCES: Resource allocation is left as an issue for the specific acquisition activity. Typically, the team assigned to conduct a campaign level deficiency analysis would include functions covering mission analysis, design engineering (including software), logistics (supportability), cost, contracting and management.

d. LESSONS LEARNED: The Air Force Lessons Learned Program should be consulted for current lessons learned regarding campaign level deficiency analyses.

e. BEST PRACTICES: It is essential that the Operating Command participate in the deficiency analyses (conducted by a supporting organization, such as ASC/XR) at a level sufficient to verify the assumptions and constraints applied by the analysts. The Operating Command must also participate in identifying measures of merit for determining the nature of deficiencies and verify that the concepts of operations are realistic and that deficiencies are described adequately to support follow-on evaluation of nonmateriel solutions (C7 and D7).

f. TRAPS: The results of any campaign simulation are very dependent upon assumptions regarding the way the forces are allocated in accordance with the initial strategy and the response to the situation as it evolves. All assumptions made in support of performing the campaign level deficiency analysis must be clearly identified and sensitivity analysis of their impact on the results must be conducted.

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1. ELEMENT: C7, TBS 0.1.7.2 (IFC 93-3)

2. ELEMENT TITLE: Assess Nonmateriel Alternatives

3. ELEMENT OWNER(S): Operating command

4. ELEMENT STAKEHOLDER(S): Air Staff, MAJCOMs, FOAs, AFMC, and wargamers at Service schools.

5. REQUIREMENT: DODD 5000.1, Defense Acquisition Management Documentation and Reports, Feb 91, Part 2B2. This directive contains the requirements generation of the mission needs.

6. PURPOSE/OBJECTIVES:

a. Purpose: To assess whether an operational shortfall can be corrected with a nonmateriel solution.

b. Objective: Identify nonmateriel alternatives.

7. DESCRIPTION: The assessment of nonmateriel alternatives is accomplished as part of the Mission Need Analysis (MNA) (C3). If a MAJCOM identifies a shortfall in its ability to accomplish a task or mission, their first obligation is to determine if a change in tactics, doctrine, organization, operational concepts, support concepts, or training (nonmateriel solutions) may solve the deficiency. If a nonmateriel solution cannot be found, then a materiel solution (new hardware or software) is required, which initiates the development of the preliminary mission need statement (MNS) (C12). If a nonmateriel solution is found, it is then integrated into the concept of operations (CONOPS) (C2). At the request of the Operating Command, the Product Centers can lend assistance by determining the deficiency, thereby establishing the baseline against which materiel and nonmateriel solutions can be assessed (D7).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Completion of the tasks identified during the MAA, the deficiency analyses (C6), and identification of an operational shortfall.

b. Exit: Determination of whether a nonmateriel alternative can be identified.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Mission area assessment (MAA) (C1), completed.

(2) Results of deficiency analysis (C6).

(3) Investigation results of Product Center support of nonmateriel alternatives (D7).

b. Outputs:

(1) Request Product Center support for nonmateriel alternative assessment (D7).

(2) Develop the preliminary MNS (C12), if a materiel need is identified.

(3) Return to CONOPS development (C2), for a nonmateriel alternative.

10. KEY REFERENCES:

a. AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, paragraphs 1.1.4, 1.1.6. This regulation defines the planning process and philosophy for the MNA and the evolutionary requirements definition.

b. AFPD 10-6, Mission Needs and Operational Requirements, 19 Jan 93, paragraph 1.3. This is the directive to assess all nonmateriel alternatives.

c. DOD Directive 5000.1, Defense Acquisition, 23 Feb 91, Part 1, paragraph B.2.a., directs examining nonmateriel solutions as part of evolutionary requirements definition.

d. DOD Instruction 5000.2, Change 1, Defense Acquisition Management Policies and Procedures, 26 Feb 93, Part 3, paragraph 2.a.(2), directs examining nonmateriel solutions as part of the determination of mission needs.

11. IMPLEMENTATION TOOLS: None Identified

12. PLANNING GUIDANCE:

a. DURATION: Varies from a few days to months depending on magnitude of deficiency.

b. CONSTRAINTS: None Identified.

c. RESOURCES: From one to several personnel including analysts, logisticians, and engineers. Various campaign and mission/effectiveness models for analysis.

d. LESSONS LEARNED: Don't attempt to proceed to Milestone 0 without fully exploring this topic or OASD will send you back to complete the work which should have been done in the first place.

e. BEST PRACTICES: None Identified

f. TRAPS:

(1) There appears to be a lack of communications between the user's Requirements and Operations groups. Some Operations people claim their first involvement at COEA; others claim they're not involved until after developmental testing.

(2) The quality of the assessment is dependent upon the completeness of the deficiency analysis. If the deficiency analysis is by-passed or incomplete, then an incorrect conclusion may be drawn.

1. **ELEMENT:** C9, TBS 0.1.9.8.1 (IFC 93-3)

2. **ELEMENT TITLE:** Submit Preliminary Budget Requests

3. **ELEMENT OWNER(S):** Using Commands

4. **ELEMENT STAKEHOLDER(S):** AF/XOR, SAF/AQ/FMB, AFMC/XR, and HQ AFMC/XT/FM.

5. **REQUIREMENT:** Dod Directive 7045.14, The Planning, Programming, and Budget System (PPBS), 22 May 84.

6. **PURPOSE/OBJECTIVES:** The purpose of the initial Program Objective Memorandum (POM) is to ensure that projected funding is included in the Biennial Planning, Program, and Budgeting System (BPPBS). The objective is to ensure adequate project funding.

7. **DESCRIPTION:** At this projects point, the Air Force must project the funding needed if a materiel solution is required (C7). For POM purposes this would be considered a new start or initiatives. Initiatives need to be supported and offset by the using Major Commands (MAJCOMs) who will benefit from their development and/or production. (An offset is a funds reduction in a program that is made in order to provide funding for another program which has been assigned a higher priority.) Support for initiatives must be solicited early in the BPPBS cycle from the using MAJCOMs by the proposing AFMC organizations if any success can be expected.

The using MAJCOM Point of Contact (POC) will be the Studies Advisory Group (SAG) leader (reference C4, Form Action Officer Working Group). The ASC project manager should work with the SAG to determine what activities should occur during the POM years. ASC will be tasked to estimate how much these activities will cost (D77) and prepare a POM input.

Air Force Materiel Command (AFMC) provides HQ USAF *"for information only" initiatives on* acquisition programs which are being executed for the using MAJCOMs. These initiatives contain program and pricing information for use by the Resource Allocation Teams (RATs) if the initiatives are introduced into the AF POM formulation process by the using MAJCOM or HQ USAF sponsor.

After the ASC project officer prepares the cost estimate and the MAJCOM POM/BES is ready to be submitted to Air Staff (B5), they must first be reviewed and approved by the using MAJCOM. If a SAG has not been established, it is recommended that a review and buy-in be conducted by the using MAJCOM POC POM focal point and comptroller Cost Analysis function.

The PPBS Primer, 7th edition, Jan 93, Chapter 4.2.3, provides more information on the MAJCOM POM development process.

8. **ENTRANCE/EXIT CRITERIA:**

a. Entrance: The need for the effort described above at this phase of the project should be dependent on the anticipated ability to interject the estimated project costs into the Air Force POM to establish a preliminary financial position of the anticipated program. It is important to establish a POM funding line as soon as possible after it is determined that a materiel solution is required.

b. Exit: Inclusion of a wedge into the Air Force POM.

9. KEY INPUTS AND OUTS:

a. Inputs:

(1) Preliminary cost estimate and associated groundrules and assumptions (develop Preliminary Cost Estimates (D77)).

(2) Program Decision Package (PDP) Support Package (D77).

(3) Mission Need Statement (MNS): May not be complete. You just have an idea of what requirement exists and can compare it to other similar program (MNS) (C12).

b. Outputs: POM submission to AF/XOR.

10. KEY REFERENCES:

a. DODI 7047.7, Implementation of the Planning, Programming, and Budgeting System (PPBS), 23 May 84.

b. AFP 172-4, The Air Force Budget Process. Oct 87.

c. POM Guidance, issued biannually from AF/PE, usually around June of odd numbered years.

d. AFSC Financial Management Handbook, Chapter 1, Nov 92, provides information on the Biennial Programming, Planning, and Budgeting System (BPPBS).

11. IMPLEMENTATION TOOLS:

"The PPBS Primer," 7th Edition, Jan 93. This document, while still "draft," is published by the Directorate of Programs and Evaluation, Department of the Air Force, and provides a valuable description of the current PPBS process. This is one of the few documents that describes the current process, in detail. Further, it defines the activity schedule for the development of the POM.

12. PLANNING GUIDANCE:

a. DURATION: Approximately 9 months. Normally the POM process starts in the spring of odd numbered years when the Air Staff provides each MAJCOM with a current repriced AF baseline and a MAJCOM-specific baseline. In the fall of the odd numbered years, the MAJCOMs present their POM proposals to HQ USAF. ASC involvement usually starts in May of odd years and continues through July.

b. CONSTRAINTS:

(1) The primary constraints to the activity are the resource limitations placed on the MAJCOM by the Air Force and OSD, and the schedule limitations on management reviews inherent in the budget timetable.

(2) A second constraint is limited data (being pre-Milestone 0) from which to submit an input that could cover the next 6 years. Yet; if an input is not made, there may be adequate funding in the future if a project does proceed.

(3) The supporting cost estimate will have to be done at a very high level because very little is known about how the program will be structured. Because of this, the estimate should only address the POM years. The whole purpose of an estimate and a POM at this time is just to ensure funding is available when a favorable Milestone 0 decision is made.

(4) The using MAJCOMs will have to prioritize their requirements. As the budget becomes tighter during this draw down period, hard choices will have to be made if new starts are to receive funding.

c. RESOURCES: The Product Center project manager needs to stay in constant contact with the MAJCOM POC and the Program Element Monitor (PEM). The PEM is the overall Air Force focal point for his or her programs and must interface with the Resource Allocation Team to ensure the Program Element (PE) is supported properly. A few weeks of project manager and cost analyst time may be required to prepare the POM input and answer "what-ifs" and other questions.

d. LESSONS LEARNED:

(1) During the Air Staff POM deliberations and reviews, it is important that the project managers keep in close contact with the project representative(s) in AF/XO (and SAF/AQ, if someone has been identified). This is important to help resolve issues that may arise, and to ensure that they fully understand all the pertinent aspects of the project, and can defend the projected resource requirements. Also, development of the POM is a comprehensive and complex task, and the information requested can be expected to change with every submission. Therefore, the POM analyst in the project office needs to ensure that (s) he is not only in compliance with the formal tasking and the local budget staff instructions, but also satisfies the information and documentation needs of the Air Staff project representative.

(2) May want to create the budget line in an existing program especially if developing a weapon system to replace one that already exists or a modification for an existing weapon system.

e. BEST PRACTICES:

(1) After submission of the POM package, the project office should posture itself to be able to respond effectively to programmatic questions, and to be able to generate quantitative answers to Air Staff requests to develop and price out program variations to the POM submission. The capability to generate this "what-if" information in a timely (and quality) manner is important, since the reconciliation and rankings to be performed by the Resource Allocation Teams may require modifications to the MAJCOM POM requests and programs in terms of funding levels, quantities, schedules, or other programmatic aspects. If a project office is unable to provide the necessary information, or not in time to support the decision makers, the project may not be supported or approved with sufficient funding levels.

(2) Get SAF/AQ involved as early as possible.

f. TRAPS:

(1) Lack of clear explanation/documentation that this budget wedge is anything more than just an initial budget line and isn't backed up by an estimate of a real program (i.e., estimate doesn't represent a full estimate of the anticipated program). Sometimes these estimates can become engraved in stone even before an official approach has been agreed on (i.e., new aircraft or mod existing aircraft), that's why we recommend only estimating from MS 0 decision through POM years (may not even cover all of Phase 0).

(2) If the POM is the first for the project, the submission will be considered a "New Start," and identified as such. There may be additional documentation requirements and a higher level of review for these programs, since there is no existing funding line. Due to this, the project office must be especially prepared to defend project requirements.

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1. **ELEMENT:** C11, TBS 0.2.1.2 (IFC 93-3)

2. **ELEMENT TITLE:** Establish IMPACTS Planning Team

3. **ELEMENT OWNER(S):** SAF/AQX

4. **ELEMENT STAKEHOLDER(S):** ASC/ALLH, Operating Command, ASC/EN, AFMC/XR, and Product Center XRs.

5. **REQUIREMENT:** DoDI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 7, Section B, Human Systems Integration. Describes the DoD requirement for incorporating Human Systems Integration in weapon system acquisitions.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of establishing an Integrated Manpower, Personnel and Comprehensive Training and Safety (IMPACTS) Planning Team is to bring together the necessary expertise required to assess and address issues within individual IMPACTS elements, such as manpower, personnel, training, and safety constraints, and to provide a forum for assessing trade-offs. Up to Milestone 0, this process is meant to be very approximate and non time-consuming because of the lack of specificity associated with the Mission Need Statement (MNS) process. After Milestone 0, a more in-depth analysis will be required.

b. Objectives: To improve the analysis and integration of IMPACTS considerations in the Air Force systems acquisition process.

7. **DESCRIPTION:**

a. DoDI 5000.2, Part 7, Section B, requires that human considerations be integrated into the design of defense systems in order to focus on the capabilities and limitations of the airman in order to improve total system performance and reduce costs of ownership. The Air Force initiative to incorporate Human Systems Integration (HSI) into Air Force weapon system programs is called IMPACTS. The IMPACTS program is a comprehensive management and technical approach for addressing the human centered elements of manpower, personnel, training, safety, health hazards, and human factors engineering in the acquisition of new or improved systems.

b. Pre-Milestone 0 goals, constraints, and objectives are developed through a thorough analysis of the predecessor system or new system concepts. These goals, constraints, and objectives, along with a strategy for meeting them, are documented in the Preliminary IMPACTS Program Plan (P-IPP).

c. An IMPACTS Planning Team is formed at the end of the Mission Need Analysis (MNA) process (if a materiel solution is needed) (C7) and in time to provide inputs into the writing of the Mission Need Statement (MNS) (C12). It is chaired by the Operating Command prior to Milestone I. After Milestone I and System Program Office (SPO) formation, it will be chaired by the Implementing Command. The team members vary based on the project but should include representatives from the Operating, Implementing, and Participating Commands and other supporting agencies who are tasked with development and implementation of HSI strategy for new or modified systems (D9).

d. The primary objective of the planning team is to improve the analysis and integration of IMPACTS considerations in the Air Force systems acquisition process. The planning team efforts must reflect the concerns and planning efforts of the Operating Command and the Implementing Command. To attain this objective, the following applies:

(1) Ensure that IMPACTS considerations, factors, and constraints are identified and included in the MNS when the potential to provide an optimally supported system is greatest.

(2) Integrate IMPACTS considerations into the acquisition process along with cost, schedule, performance, reliability, and maintainability.

(3) Ensure that training planning, requirements analysis, and training equipment development and production are planned, coordinated, and funded.

(4) Establish and use data sources, analytical tools, and procedures that support IMPACTS element trade-off analyses during the Milestone Decision process.

(5) Provide IMPACTS analysis results to decision authorities; emphasize life cycle cost and the effective use of critical manpower, personnel, and training resources.

e. Planning and coordinating an IMPACTS program require an initial focus on the predecessor system to establish a baseline and to develop input to subsequent studies and plans. This analytical process is used to identify existing manpower, personnel, training, safety, health hazards, and human factors engineering "high-drivers." "High-drivers" are those tasks that are costly in terms of manpower, personnel, or training resources. Logistics Support Analysis (LSA) Task 203, prior to Milestone 0, provides a method of addressing these issues as a Baseline Comparison System is defined. The IMPACTS predecessor analysis process is focused on information typically available at Operating Command headquarters for the identification of:

(1) Predecessor system(s) lessons learned and the development of a predecessor "footprint" or baseline.

(2) Predecessor "high driver" tasks.

(3) Initial IMPACTS element considerations (goals and constraints).

(4) Technological opportunities and new training employment scenario possibilities.

f. IMPACTS Planning Team responsibilities include initial predecessor analysis and development of the Preliminary IMPACTS Program Plan (P-IPP). The effectiveness of the planning team will depend on how rapidly they form, initiate appropriate analysis, and provide input for the acquisition documentation.

(1) The P-IPP contains a summary of the high-driver considerations from the IMPACTS Predecessor Analysis Process and serves as the central management document for the system-specific IMPACTS program. It is developed in six parts outlined in Appendix B of the IMPACTS Process Handbook, Apr 91.

(2) The P-IPP is used by the Operating Command to support development of the Preliminary MNS (C12) and is an evolutionary plan that supports the IMPACTS process throughout the life cycle of a system. Prior to Milestone I, it is updated, coordinated with the IMPACTS Planning Team members, and approved by the operating command's Deputy Chief of Staff (DCS) for Requirements (or equivalent).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The formal IMPACTS process begins with the identification by the Operating Command of a need that requires a materiel (hardware/software) solution.

b. Exit: The activity is an iterative process and continues throughout the life of the system.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: Mission Need Analysis (MNA) (C3)
Assess Non-materiel Alternatives (C7)

b. Outputs: Preliminary IMPACTS Program Plan (P-IPP)
Risk Assessment to Integrated Program Summary
IMPACTS input to MNS (C12)

10. KEY REFERENCES:

a. AFI 10-601, 16 Feb 93, Page 12, Paragraph 1.14; Attachment 4, Section B, MNS Format, Paragraph 5; and Attachment 6, Section B, Operational Requirements Document (ORD) Format, Paragraph 5.c. States the requirement to include manpower, personnel and training considerations into the MNS and ORD.

b. IMPACTS Process Handbook, Apr 91, HQ USAF/MOR, provides a guide for the initiation and development of an IMPACTS program.

c. Air Force Acquisition Model (AFAM).

d. Automated Lessons Learned Capture and Retrieval System (ALLCARS).

e. AFR 26-1, Vol V, Integrated Manpower, Personnel and Comprehensive Training and Safety (IMPACTS) Program, provides policy and establishes responsibilities for incorporating IMPACTS into systems engineering and program management of Air Force acquisitions and modifications.

11. IMPLEMENTATION TOOLS:

a. Computer Supported Network Analysis System (CSNAS) has models for IMPACTS for each of the acquisition phases and can be obtained from ASC/ALL, Wright-Patterson AFB OH, DSN 785-5555.

b. LSA provides a DoD methodology for analyzing manpower, personnel and training.

12. PLANNING GUIDANCE:

a. DURATION: The IMPACTS Planning Team meetings should take between 1 to 3 days each. Initially, the planning team should meet quarterly and then as required throughout the life of the program.

b. CONSTRAINTS:

(1) Funding for travel.

(2) Availability of appropriate personnel to attend the meetings.

(3) Program slips due to program funding shortfalls.

(4) Nonavailability of predecessor system information/data.

c. RESOURCES: The IMPACTS Planning Team is formed by the Operating Command, with assistance from the Implementing Command, at the end of the MNA process (if a materiel solution is needed) and consists of representatives from the Implementing, Operating, and Participating Commands and other supporting agencies tasked with the development and implementation of human systems integration strategy for new Air Force weapon acquisitions or modifications.

d. LESSONS LEARNED: The following Lessons Learned were extracted from the Automated Lessons Learned Capture and Retrieval System (ALLCARS) maintained by ASC/CYM at Wright-Patterson AFB OH 45433-5000, DSN 785-3454. Additional Lessons Learned can be found in AFAM, under Section 1.9.2.2, Manage the M&P Program.

(1) Without good front-end analysis of predecessor systems, ILS and supportability issues will surface only when the materiel system is in the hands of the user, (reference AF Lessons Learned #1643).

(2) Without properly trained people in the right place at the right time, our major weapon systems are just so much "metal on the ramp" (reference AF Lessons Learned #1726).

e. BEST PRACTICES: The Deputy Project Manager for Logistics (DPML) or Integrated Logistics Support Manager (ILSM) for IMPACTS must be members of the IMPACTS Planning Team. They review the P-IPP/IPP to ensure that the document contains appropriate information regarding IMPACTS. Projects which do not comprehensively plan the activities related to IMPACTS will fail to acquire the assets needed to operate or support the project throughout its life cycle.

f. TRAPS: Failure to have the proper representation from the appropriate, experienced players may result in poor planning, lack of supportability, and poorly trained personnel.

1. **ELEMENT:** C12, TBS 0.2.1.1 (IFC 93-3)

2. **ELEMENT TITLE:** Develop Preliminary Mission Need Statement

3. **ELEMENT OWNER(S):** Operating Command

4. **ELEMENT STAKEHOLDER(S):** Product Centers, CINCs, and HQ USAF.

5. **REQUIREMENT:** DOD Directive 5000.2, Defense Acquisition, 23 Feb 91, Part 4, Section B. This section describes the evolution of mission needs and requirement to prepare a MNS.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: Identify and document a mission deficiency that requires a materiel solution.

b. Objectives: Describe the deficiency in broad operational capability terms (nonsystem specific). Identify the projected threat environment and applicable operational constraints.

7. **DESCRIPTION:**

a. DODI 5000.2 requires a Mission Need Statement (MNS) be completed at Milestone 0. A MNS is required for all potential materiel acquisition programs, not just major programs. MNS that may result in a major new defense acquisition program (ACAT I) must be sent through the Air Staff (B7) to the Joint Requirements Oversight Council (JROC) (A6). The JROC reviews the MNS (A8), validates and approves the mission need, and is the initial Milestone Review link with the requirements generation system. The JROC sends the MNS to the DAB for the Milestone Review (A9). For nonmajor new defense programs (ACAT II-IV), MNS are validated by the Operating Command, sent to the Air Staff for approval, then presented to the AFSARC for the Milestone Review.

b. The Operating Command continually assesses its mission and identifies operational and support system deficiencies. Mission deficiencies are identified as a direct result of a continuing assessment of current and projected capabilities in the context of changing military threats, national defense policy (A1) and Air Force defense policy (B1). A mission need analysis (C3) that results in a deficiency requiring a materiel solution will necessitate a MNS.

c. The MNS defines projected needs in broad operational terms. The MNS must contain an assessment of why non-materiel solutions were determined to be inadequate (C7). The MNS should be brief, succinct, and clearly state a mission deficiency or technological opportunity. The Operating Command will define the need in terms of mission, objective and general capabilities, not in terms of equipment or system specific performance characteristics. The following factors should be considered in writing the MNS:

(1) Must make a determination (often highly subjective) of whether or not an identified need could result in the initiation of a new major defense acquisition program. Where there is doubt, the need should be treated as if it would result in a major defense acquisition program.

(2) Identify needs that could result in a capability that may require the use of new, leading edge technologies; an extensive development effort; or the initiation of a major upgrade to an existing system that has significant quantities already fielded.

d. The MNS will also identify potential materiel alternatives. The project team (consisting of Operating Command OPR and Product Center development planners, program developers, and labs) will support development of those alternatives (D9) but will not evaluate them until Phase 0 (D37). If an opportunity exists at this time to insert a funding wedge in the POM, the Operating Command will submit a budget request (C9) to the Air Staff (B5) and eventually to OSD (A4). The budget request would be

supported by a very rough cost estimate generated by the project office (D77), probably based on the worst case alternative.

e. Initial Integrated Manpower, Personnel and Comprehensive Training and Safety (IMPACTS) planning will begin during development of the MNS (C11). The MNS should describe any constraints associated with initial findings.

f. The Air Force shall consolidate similar deficiencies of multiple MAJCOMs and/or other Services. Integrated needs that share a common solution can contribute to lower costs, prevent duplication of effort during development, and result in improved commonality, standardization, and interoperability of weapon systems. If the MNS indicates that the set of alternatives may include other programs already in development, then the Operating Command must contact the appropriate Program Executive Officer to ensure applicable program management directives are reviewed and revised, if required, to support concept exploration and definition studies.

g. The MNS consists of five major categories. See DOD 5000.2-M, Part 2, Attachment 1, and AFI 10-601, Attachment 4, for procedures and format.

(1) *Defense Planning Guidance Element*: Identify the major program planning objectives or section of the Defense Planning Guidance and mission areas.

(2) *Mission and Threat Analyses*: This section identifies and describes the mission need or deficiency. This section should include a discussion of the Defense Intelligence Agency-validated threat to be countered as well as the projected threat environment and shortfalls of existing capabilities.

(3) *Nonmateriel Alternatives*: This section discusses the results of the mission area analysis and why nonmateriel alternatives were judged to be inadequate.

(4) *Potential Materiel Alternatives*: Identify known systems or programs addressing similar needs that are deployed or in development/production by any of the Services or Allied nations. This section should cover potential inter-Service or Allied cooperation and indicate potential areas of study for concept exploration/definition. Operating MAJCOM must be cautioned not to evaluate the alternatives.

(5) *Constraints*: This paragraph describes, where applicable, key boundary conditions related to infrastructure support that may impact on satisfying the need: including mission planning needs; arms control treaties; logistics support; transportation; mapping, charting and geodesy support; manpower, personnel and training constraints; command, control, communications, and intelligence interfaces; security; and standardization or interoperability within the North Atlantic Treaty Organization, other allies, or Department of Defense components. This will include the level of desired mission capability based on operational environment.

(6) Joint Potential Designator: This indicates the level of other Service interest and participation.

h. DODI 5000.2 states that there should be a single MNS format. The Air Force, however, has defined several types of MNS and these are referenced in AFI 10-601, paragraph 1.3.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Identification of a mission deficiency or technology opportunity requiring materiel solutions based on mission needs analysis.

b. Exit: Draft MNS ready for staffing and coordination.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Defense Planning Guidance (A1).

(2) Assessment of non-materiel alternatives (C7).

(3) Identification of a deficiency that requires a materiel solution (C3).

(4) Potential materiel alternatives (D9).

(5) Threat information (B6).

(6) Constraints to meeting the need, including results of IMPACTS planning (C11).

b. Output: Draft MNS ready for staffing and coordination.

10. KEY REFERENCES:

a. DOD 5000.2-M, Defense Acquisition Management Documentation and Reports, Feb 91, Part 2, Atch 1.
This attachment explains the format requirements for developing a MNS.

b. DOD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, Feb 91, Part 3, paragraph 2. This section explains how the MAJCOMs determine their mission needs in various acquisition phases.

c. AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, paragraph 1.3 and Attachment 4. Paragraph 1.3 explains the different types of MNS and Attachment 4 provides detail procedures and format in developing a MNS.

d. Chairman of the Joint Chiefs of Staff (CJCS) Memorandum of Policy (MOP) No. 77, Requirements Generation System Policies and Procedures, 17 Sep 92. This memorandum provides what is included in the requirements generation system process.

e. Lessons learned are documented in the Automated Lessons Learned Capture and Retrieval System (ALLCARS) maintained by ASC/CYM at Wright Patterson AFB OH 45433-5000, DSN 785-3454.

11. IMPLEMENTATION TOOLS: A library of MNSs and ORDs is available in HQ USAF/XORJ for anyone who wants to access them. For additional information, contact AFXORJ, DSN 225-7107.

12. PLANNING GUIDANCE:

a. DURATION: Drafting a MNS will take 30-120 working days, depending on priority.

b. CONSTRAINTS: Product Center support to the Operating Command during Mission Area Assessment and Mission Needs Analysis will be done through a process called Technical Planning Integrated Product Teams (TPIPTs). The process has not been formalized and actually implemented to date. It is intended to combine Operating Command and Implementing Command planning to produce an integrated approach to satisfying mission needs, but is relatively untested.

c. RESOURCES: A dedicated action officer will require 30-120 working days to draft the MNS. Product Center personnel will become involved during the technical planning team process (TPIPTS) and for identifying potential areas of study (materiel alternatives) for concept exploration and definition.

d. LESSONS LEARNED:

(1) MNS writers sometimes don't follow specific guidance provided on how to write the MNS. Some common errors are failing to reference the Defense Planning Guidance, confusing constraints with requirements, failing to discuss potential for inter-Service or allied cooperation, and failing to include the threat. Funding requirements will not be included in the MNS.

(2) If the MNS has potential for Joint application, the writer should contact the Office of the Joint Chief of Staff. This office will assist in coordinating the Joint perspective from other Services to create one MNS. This could save valuable man-hours downstream and eliminate some duplicative efforts.

(3) The Office of the Joint Chief of Staff reviews all ACAT I MNS. Many times the Operating Command identifies system requirements versus the need for a materiel solution. The writer should review MNS format and procedures prior to writing the document to ensure it focuses on needs expressed in broad operational capability terms. The MNS should not identify system specific requirements or solutions.

e. BEST PRACTICES:

(1) Keep key players (reference AFI 10-610, Attachment 10) involved and communications open to avoid any surprises. Some examples of surprises are not explaining the limitation in the models used in the analyses and not understanding the true needs of the Operating Command. Be aware of the consequences to specific decisions.

(2) Coordinate with other commands (Air Force MAJCOMs and Unified and Specified Commands) and other Services to consolidate similar deficiencies that can lower development and production costs.

(3) Technical planning teams (TPIPTs) are being created in AFMC to address mission areas at least annually to support the user in determining specific tasks to perform and assess what is available and what is feasible. This "strategy-to-task" formalizes how to define requirements by reviewing the national objectives and military strategy, in concert. AFMC is in the process of formalizing this process. Acquisition individuals need to become aware of this process, who is involved, what is accomplished, etc., in order to understand how mission needs are identified and evolve into potential solutions and technology programs to support them.

f. TRAPS:

(1) Straying off the broad operational requirements and stipulating system specific solutions binding life cycle cost and trade-off analyses. Product Centers can assist by providing analyses in a very concise and standardized manner. The Multiple Role Forces program is presently in the process of determining these requirements and can be contacted for additional traps.

(2) Delays in reviewing draft MNS due to priorities and availability of personnel.

(3) Inadequate data for basing analyses; not understanding the assumptions associated with certain computer models.

1. **ELEMENT:** C13, TBS 0.2.1.3 (IFC 93-3)

2. **ELEMENT TITLE:** Staff and Coordinate MNS (User)

3. **ELEMENT OWNER:** Operating Command

4. **ELEMENT STAKEHOLDER(S):** Operating Command, AFMC, Participating Commands, and AF/XOR.

5. **REQUIREMENT:** AFPD 10-6, Mission Needs and Operational Requirements, 19 Jan 93, Attachment 3, identifies Mission Need Statement (MNS) approval requirements. AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, Attachment 4, identifies MNS staffing and coordination procedures.

6. **PURPOSE/OBJECTIVES:**

   a. Purpose: Staff and coordinate the MNS at the Operating Command.

   b. Objective: Obtain Operating Command approval.

7. **DESCRIPTION:** The overall MNS staffing and coordination process begins at the Operating Command where the MNS is drafted (C12), continues with Air Staff coordination (B7), JROC Service, CINC, and Joint Staff coordination (ACAT I) (A6), and ends with either CSAF approval (ACAT II-IV) or validation and approval by the JROC (ACAT I) (A8). The Air Staff and JROC will use the latest threat information to ensure the threat used to develop the MNS is valid (B6 and A5 respectively). The JROC also will review ACAT I MNS for assignment of Joint potential designator (i.e., potential for Joint applicability). For ACAT II-IV MNS, validation and approval are done by the Air Force with the Operating Command as the validation authority and CSAF as the approval authority (JROC assistance may be requested to resolve lead Service issues). This data sheet addresses the Operating Command portion of the MNS staffing and coordination process.

After the mission need has been documented, the project team will be working with the labs to assess current technology and guide future technology development (D18). The potential materiel alternatives identified in the draft MNS will also be used by the project team to plan for Phase 0 (C14).

(Note: This data sheet addresses Operating Command initiated MNS. An Air Force MNS can also originate from other sources, including CINCs, the Joint Staff, HQ USAF, Unified or Specified Commands, and other Federal Agencies (i.e., FAA or NASA). See AFI 10-601, paragraph 1.3, for more information)

Validation confirms that a mission need exists and cannot be satisfied by a nonmateriel solution. Approval is the formal sanction that the validation process is complete and the need is valid. Approval also indicates that the need warrants concept exploration studies for a possible new acquisition program. After approval, the MNS is forwarded to the Milestone Decision Authority for action.

Internal Operating Command MNS coordination begins after the need has been reviewed by a requirements review group (4-letter), approved by a requirements review board (3-letter), and a MNS drafted by the functional action officer with assistance from the Requirements Directorate and other experts as required. Other Service interest will normally be addressed during the requirements review process. Criticality of the need is the driving criteria for approval.

Internal coordination usually yields information on the feasibility of the need. Typical comments might address availability of funds, affordability, achievability, or political support. A Requirements 3-letter office will be OPR for coordinating the MNS. Internal coordination includes 3-letter and 2-letter coordination, with time for resolution of comments (if required) after each level. The Requirements DCS will sign out the the draft MNS, and distribute for review and comment outside the Operating Command. This phase is referred to in AFI 10-601 as the "for comment" phase. AFI 10-601, Attachment 10, lists organizations who should review the "for comment" draft MNS.

During the "for comment" phase, ACAT I MNS is distributed by AF/XOR to the JROC Secretariat for Service staffing. For ACAT II-IV MNS, as part of the validation process, the Operating Command must assess the Joint potential of the MNS by coordinating with the other Services. This is normally done with the help of AF/XOR.

In response to the request "for comment," organizations identify an OPR to the Operating Command within 7 calendar days of receipt. Comments and proposed revisions to the draft MNS are provided within 45 calendar days of receipt, or indicated suspense.

Comments from the "for comment" phase are incorporated or resolved and a final version is prepared for 3 and 2 letter final coordination. Final comments are incorporated and the Operating MAJCOM/CC approves. The MNS is sent to AF/XOR for final Air Staff coordination as required (depending on the severity of changes to the "for comment" version), then CSAF approval.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: When the MNS is drafted by the Operating Command.

b. Exit: When the MNS is approved by the operating MAJCOM/CC and submitted to AF/XOR for final Air Staff coordination and CSAF approval.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The draft MNS (C12). Current threat information from AF/IN (B6), validated by DIA (ACAT I) (A5), to ensure the threat used to develop the MNS will remain valid up to CSAF approval.

b. Outputs: An operating MAJCOM/CC approved MNS that is forwarded to the Air Staff for CSAF approval (B7). Technology guidance to the labs through the project office (D18). Information on potential materiel alternatives will be used to begin Phase 0 planning (C14).

10. KEY REFERENCES: See Requirement, paragraph 5.

11. IMPLEMENTATION TOOLS: Local Operating Command instructions.

12. PLANNING GUIDANCE:

a. DURATION: The following schedule for staffing and coordinating the MNS is "success oriented." It leaves very little room for mistakes. The need for additional time (2 or 3 months) is not unusual, especially if there is no high-powered interest in facilitating coordination:

Internal Operating Command 3-letter draft coordination:

15 days (review)

5 days (resolve comments)

Internal operating command 2-letter draft coordination:

5 days (review)

3 days (resolve comments)

Print and mail:

5 days

External draft "for comment" phase:

52 days (review)

15 days (resolve comments)

Internal Operating Command 3-letter final coordination:

5 days (review)

3 days (resolve comments)

Internal Operating Command 2-letter final coordination:

5 days (review)

3 days (resolve comments)

Internal Operating Command Council Review (ACAT I or by request):

15 days

Internal operating MAJCOM/CC signature:

5 days

Total duration 136 days

b. CONSTRAINTS: None identified.

c. RESOURCES: An Operating Command OPR will (maybe more than one depending on size and visibility of the program) plan, initiate, and conduct the staffing and coordination process. Normally the Operating Command OPR will be someone from the Requirements DCS supported by a mission area or functional OCR. An OPR will be required from each organization (i.e., AFMC, Product Center) to staff and coordinate the MNS. Functional points of contact will be needed to review and comment.

d. LESSONS LEARNED:

(1) This activity is handled by the Operating Command OPR. Product Center involvement normally would have occurred prior to staffing and coordination, hopefully in support of the Mission Need Analysis and development of the MNS. If major issues arise during this activity, however, the Operating Command OPR would notify major stakeholders and resolve the issues.

(2) The MNS OPR at the Operating Command normally has his hands full getting the document to the right people and ensuring tasked organizations return comments on time. He will carefully plan the staffing and coordination schedule and build in plenty of slack time, especially for potentially controversial programs, to ensure a quality review can be done.

(3) Product Center OPRs should take the time to ensure the MNS is a quality document: (1) Pay special attention to whether the MNS is properly focused on needs, not solutions. (2) Confirm that the need is real and based on the current threat. (3) Challenge system specific requirements or unsubstantiated required capability dates. (4) Ensure all constraints have been identified. (5) Ensure the MNS does not evaluate potential alternatives.

With all the coordination and working of comments, there are bound to be obstacles that require extraordinary effort to overcome, such as unforeseen issues, turf battles, and other differences of opinion. This is particularly true for potential Joint needs.

e. BEST PRACTICES:

(1) The Operating Command OPR normally will involve all stakeholders in the review and coordination process. He'll be keeping the AF/XOR POC in the loop and be working off the same validation and approval schedule. Early involvement of the Joint Staff is especially important for potential ACAT I MNS. The Product Center OPR also has stakeholders that shouldn't be left out. An important stakeholder (e.g., Product Center development planners) who didn't get to comment can come back to haunt you.

(2) The action officer can establish a sunset clause for comments and coordination. However, the Operating Command OPR will normally wait for comments from critical organizations like AF/XOR, AFMC, AETC and AFOTEC before proceeding on to the next phase. The OPR will be following up on comments or coordination needed the most, and will ensure the MNS action was received and is being worked according to schedule.

(3) The Product Center OPR should be prepared to help the Operating Command OPR work any comments received.

f. TRAPS:

(1) The MNS OPR, for any organization, shouldn't assume all organizations will respond on time. In order to stay on schedule, he should stay in close touch with the organizations whose coordination or cooperation are needed the most (long poles).

(2) While schedule may be a good motivator for getting the job done, it may inhibit a quality review. This activity should be primarily concerned about getting a quality review. Strike the right balance.

1. ELEMENT: C14, TBS 1.1.1.1 (IFC 93-3)

2. ELEMENT TITLE: Develop Draft Phase 0 Plans (Lead MAJCOM)

3. ELEMENT OWNER(S): Lead Major Command (MAJCOM) as designated by USAF/XOR. For Air Force led Phase 0 efforts, the lead MAJCOM is typically an Operating Command.

4. ELEMENT STAKEHOLDER(S): Air Staff (USAF/XOR, SAF/AQX),Operating Command(s), Air Force Materiel Command (AFMC/CC, XR), and AFMC Product and Air Logistics Centers (PCs/ALCs).

5. REQUIREMENT

a. AF Regulation 800-1, 16 Feb 90, "Air Force Acquisition System," paragraph 5.c, identifies the acquisition management responsibilities of Air Force acquisition managers.

b. AF Instruction 10-601, 1 Oct 92, "Mission Needs and Operational Requirements Guidance and Procedures," Attachment 2, identifies the Major Command (MAJCOM) and Field Operating Agency (FOA) pre-Milestone I responsibilities.

6. PURPOSE/OBJECTIVES:

a. Purpose: To determine the Air Force Concept Exploration and Definition (Phase 0) planning position.

b. Objective: To identify and document the following planning information to prepare for Phase 0 and possibly support a Milestone 0 decision:

Phase 0 purpose, objectives, constraints, and assumptions.
The proposed strategy and organization for accomplishing Phase 0.
Estimates of the required schedule and resources needed to accomplish Phase 0.
Content recommendations for the Phase 0 Acquisition Decision Memorandum (ADM) and Program Management Directive (PMD).

7. DESCRIPTION: After the Operating Command has identified an operational need that cannot be met through nonmateriel means, a Mission Need Statement (MNS) will be written and forwarded for review and approval to proceed with Concept Exploration and Definition (CE/D or Phase 0). At this point the lead MAJCOM should initiate planning activities to identify the desired participants, strategy, organizational structure and relationships, and associated costs for Phase 0. The Phase 0 planning activities must be a coordinated effort between all of the organizations expected to implement the plans when approved. The lead MAJCOM is responsible for ensuring the coordination of the Phase 0 planning efforts of each of the implementing organizations and formulating the proposed Air Force position on how Phase 0 will be accomplished.

8. ENTRANCE AND EXIT CRITERIA:

a. Entrance:

MAJCOM /CC Direction to Proceed to Milestone 0 - The Operating Command determines they have an operational need that they do not believe can be satisfied by nonmateriel means. They decide a MNS must be written and request an Air Force decision through USAF/XOR to proceed to a Milestone 0 decision.

b. Exit: When the Milestone Decision Authority (MDA) is satisfied with the MNS and any requested Phase 0 planning information, approval is given to proceed with Phase 0 concept studies. The MDA will issue an ADM, and AF/XOR will issue a PMD. After receiving these documents the lead MAJCOM, in partnership with the acquisition community, should update Air Force Phase 0 plans as required to bring them in line with the guidance provided by the ADM and PMD (see C16, D22, and D23).

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) *MNS* (see C12, C13, B7, A6, and A8) - The MNS is the driving force behind understanding the purpose and need for the Phase 0 activities. The lead MAJCOM should begin planning for Phase 0 as soon as a draft MNS is available from the operating command. The lead MAJCOM should always be using the most current MNS as it passes through successive levels of reviews and coordinations, approval, and validation.

(2) *Acquisition Community Inputs* (see D20A) - The lead MAJCOM must place a heavy reliance on government acquisition agencies, and contractors as appropriate, to plan and execute the activities required to meet Phase 0 objectives. Planning inputs must be collected from all organizations that will be providing acquisition management and/or technical support to the lead MAJCOM for Phase 0.

b. Outputs:

[NOTE: After the output information discussed below has been developed, it should be documented and coordinated with all supporting organizations (such as the PC/ALCs, AFSAA, USAF/IN, etc.) before being forwarded for coordination and/or approval by the Air Force or appropriate approval authority. The "Best Pctices" section of this document provides an approach to documenting the Phase 0 plans. This documentation can also serve to support the lead MAJCOM's inputs to the Program Management Directive (PMD) and the Acquisition Decision Memorandum (ADM), if it chooses to, or is asked to, be actively involved with their development.]

(1) *Phase 0 Purpose, Objectives, Constraints, and Assumptions:*

(a) *Purpose* - The stated pu pose of the Phase 0 activities must be consistent with the MNS. It should provide background informatn n on the decision process that led to initiation of the Phase 0 planning and describe why the Phase 0 activities are necessary.

(b) *Objectives* - The lead MAJCOM, in partnership with the acquisition community, will identify all objectives of the Phase 0 activities and provide them to all supporting government agencies and contractors. Objectives state the desired results of the Phase 0 activities. Objectives are commitments, not wishes. Objectives are not the activities, but the intended end results. Activities are the steps to be taken to achieve the objectives. All objectives must be identified, otherwise the resources and time needed to achieve them will not be accounted for in the planning inputs from the supporting government agencies and contractors.

(c) *Constraints* - The lead MAJCOM and all participating agencies should identify known or anticipated constraints. The lead MAJCOM will compile a list of constraints and assumptions and provide it to all supporting government agencies and contractors, as appropriate, so they can be accounted for in the planning process. Constraints include any limitations and/or needs regarding characteristics of the Phase 0 products to be produced, the schedule for performing Phase 0, the experience level and/or types of resources needed and available, and the way in which specified tasks can be performed. Limitations are conditions placed on supporting government agencies and/or contractors, to which they must conform when executing given tasks. Needs are conditions the lead MAJCOM stipulates must be met to allow successful project completion (i.e. exit criteria).

(d) *Assumptions* - An assumption is any condition or situation which is taken to be true, but which cannot be verified as being true with certainty. Any assumptions made when preparing the Phase 0 Plan, either by the lead MAJCOM or supporting organizations, should be written down and monitored by the lead MAJCOM during project execution. If an assumption eventually turns out to be false, the lead MAJCOM must work with the supporting government agencies and contractors to determine the impact on the project. Typically assumptions might be made regarding objectives, schedules, availability of required resources, work to be performed, and/or organizational situations or conditions.

(2) *Phase 0 Strategy and Organization:*

(a) *Strategy* - The strategy should discuss the overall business and technical approaches to be taken by the Air Force to accomplish Phase 0. It should specifically bound the scope of the work to be performed and identify the major activities to be completed to satisfy all Phase 0 objectives. The strategy should identify any other projects or programs with which the Phase 0 activities might interface (Phase 0 munitions projects might interface with various platform programs for instance) and to what extent other Services and/or foreign countries will participate in Phase 0. The extent to which industry will be involved, and how they will be reimbursed for their efforts, should also be addressed. Depending on the significance of the Phase 0 project, the lead MAJCOM or USAF/XOR may want to convene an Air Force Acquisition Strategy Panel (ASP) to review and approve the proposed Phase 0 strategy.

(b) *Organization* - The lead MAJCOM should identify all required project participants and how they will be organized to accomplish the work required to achieve Phase 0 objectives. Organizational responsibilities should be assigned and agreed to through a Memorandum of Agreement (MOA) or other commitment document. If any steering or working groups will be formed, their roles and responsibilities should be identified and an OPR assigned to ensure their timely formation (see C16).

(3) *Phase 0 Schedule and Resource Requirements* - The lead MAJCOM, working with the acquisition community, should identify the overall schedule and associated resources required to achieve Phase 0 objectives, given the proposed strategy. Both should be derived from the Phase 0 planning inputs provided by supporting government and industry organizations. The schedule should be based upon resource avaliability and the accomplishment of key events, or milestones, and not driven by calendar dates. Required resources should include personnel, funding, software/models, equipment, facilities, materiel, and information. Estimated Phase 0 funding requirements must be provided to the Operating Command's financial management organization to develop a budget request (see C15).

(4) *ADM and PMD Inputs* - It is in the best interest of the lead MAJCOM, working with the acquisition community, to submit recommendations to USAF/XOR regarding the content of the Phase 0 ADM and the PMD. The key outputs listed above, along with the MNS, will provide all of the recommendations required for the MDA to write the Milestone 0 ADM (see A9) and for USAF/XOR to write the Phase 0 PMD (see B10).

10. KEY REFERENCES:

a. DoD Directive 5000.1, 23 Feb 91, "Defense Acquisition," provides overall DoD defense acquisition policies.

b. DoD Instruction 5000.2, 23 Feb 91, "Defense Acquisition Management Policies and Procedures," Section E, paragraph 2, provides DoD policies on program plans.

c. AF Policy Letter 91M-001, 20 Jun 91, "Early Industry Involvement in Acquisition Planning," establishes SAF policies regarding early Industry involvement in acquisition planning.

11. IMPLEMENTATION TOOLS: See D20 for information on potential implementation tools to support this activitiy.

12. PLANNING GUIDANCE

a. DURATION - The duration of the Phase 0 planning activities will vary depending on a variety of factors such as potential program size, complexity, available resources, political sensitivity, number of organizations involved, Joint service and/or international involvement, etc. The major driver will likely be the number of organizations involved since thorough coordination of all aspects of the plan is required to have a high confidence in its executability. For fairly simple Phase 0 efforts, a minimum of about 3 months should be allowed to build and coordinate planning information. For potential DAB programs, adequate planning and coordination could take as much as 1 year.

b. CONSTRAINTS: None identified.

c. RESOURCES:

(1) *Manpower* - To develop the Phase 0 plan, the lead MAJCOM must engage the support of all organizations expected to play a major role. This will typically include personnel from USAF/XOR, SAF/AQ, AFMC PCs/ALCs, the Office of Aerospace Studies (OAS), and other MAJCOM organizations. If there are Joint Service or international implications, then personnel from those organizations must also be involved. If the Phase 0 activities will require access to and/or generation of special access materials, security personnel from SAF/AQ must be assigned.

(2) *Funding* - Sufficient funding should be made available to allow necessary and appropriate travel for collecting and coordinating planning inputs from/with participating organizations.

(3) *Other Resource Considerations* - If the Phase 0 activities will require access to and/or generation of special access information, then a special access program must be generated and facilities must be made available at all impacted support installations. All special access programs required to support Air Force pre-Milestone I activities are requested through USAF/XOR. At least 6 months lead-time should be allowed to establish a special access program.

d. LESSONS LEARNED: None Identified.

e. BEST PRACTICES:

(1) *Initiate a Working Group to Help Plan for Phase 0* - For larger Phase 0 projects, it may be beneficial for the lead MAJCOM to initiate a working group to help integrate organizational plans into a single Air Force Phase 0 planning position. This group should contain representation from all of the organizations critical to the achievement of the Phase 0 objectives. The working group objective would be to integrate all of the Phase 0 planning inputs from each of the organizations expected to participate in Phase 0 and develop a single recommended Air Force position on how to accomplish Phase 0.

(2) *Develop a Master Plan and Master Schedule* - The lead MAJCOM should develop a master plan and schedule that documents the coordinated Air Force planning position and incorporates the plans and schedules of each of the implementing organizations. Schedules should be event-based with clearly defined success/exit criteria for proceeding to the next established event. See D20 for more details on the Master Plan and Master Schedule concepts.

(3) *Build an Early Partnership with Industry* - It is Air Force policy (see AFP 91M-001) to facilitate early, open, and effective communications between industry and government during the acquisition planning process. This early communication is vital to achieving ultimate program success. Industry participation in Pre-MS 0 activities can be a great benefit for both the government and the industry participants. The Government can readily tap years of industry independent research and development (IR&D) and impact future industry IR&D spending or scheduling plans. Industry can gain insight to early Government planning information to develop better long range plans and put themselves in a better competitive position if an acquisition program actually does develop.

f. TRAPS:

(1) *Use of Industry Information* - Because industry provided information/data is often misrepresented or misleading, it is critical that experienced acquisition personnel play key roles in any effort that includes industry developed or provided information. Industry provided data should not be taken at face value and should always be examined for legitimacy.

(2) *Lead MAJCOM Desire to Proceed Forward too Rapidly* - Many lead MAJCOM action officers do not understand the many successful, logically based, event-driven steps that must occur to achieve Phase 0 objectives. The lead MAJCOM should avoid establishing unreasonable timelines that drive the planning activities or the Phase 0 activities and schedules.

(3) *Optimistic Planning* - The lead MAJCOM should not allow overly optimistic schedule and resource planning to occur, either by themselves or any of their supporting organizations (i.e., PC/ALCs, industry, support contractors, etc.). Because there is insufficient resources available to cover all the programs the MAJCOM feels they need to support is not an excuse for planning for bare-bones resources. Nor is headquarters direction to complete an activity by a given date an excuse to plan to that date if it can't be achieved given available resources; negotiate a more reasonable completion date or get a commitment for the required resources. If you know your plans are optimistic (versus realistic), you're simply setting yourself up for failure.

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1. **ELEMENT:** C15, TBS 1.1.1.5.1 (IFC 93-3)

2. **ELEMENT TITLE:** Update Budget Request

3. **ELEMENT OWNER(S):** Using Commands

4. **ELEMENT STAKEHOLDER(S):** SAF/AQ/FMB, AF/XOR, AFMC/XR, ASC/XR/YX, and HQ AFMC/XT/FM.

5. **REQUIREMENT:** DoD Directive 7045.14, The Planning, Programming, and Budget System (PPBS), 22 May 84. This directive provides guidelines for updating a program funding line in the PPBS cycle.

6. **PURPOSE/OBJECTIVE(S):**

   a. The purpose of this element is to update the existing project funding level in the PPBS.

   b. The objective is to provide adequate project funding over the 6-year budget cycle.

7. **DESCRIPTION:** Once the Air Force has determined that a material solution is required and the using Major Command (MAJCOM) has documented the requirement with a Mission Need Statement (MNS) (C13), the user then develops a plan for Phase 0 (C14 and D20a). Funding for this new start is generally supplied by Program Element (PE) 65808 or a PE with related projects.

The using MAJCOM point of contact may or may not establish a Studies Advisory Group (SAG) (C4). The ASC project manager works with the SAG or project officer to identify what project activities are planned during the POM/BES years. The ASC project office will be tasked to estimate how much the project will cost and to prepare a POM/BES input. The AFSC Financial Management Handbook, Chapter 1, provides more information on the AFMC role in the POM/BES process and how the using MAJCOM is supported.

After the ASC project officer prepares the cost estimate and the MAJCOM POM/BES is ready to be submitted to Air Staff (B8), it must be reviewed and approved by the user. If the MAJCOM has not established a SAG, it is recommended that a review and buy-in be conducted by the using MAJCOM POC, POM focal point and comptroller cost analysis function.

The PPBS Primer, 7th edition, Jan 93, Chapter 4.2.3, provides more information on the MAJCOM POM Development process.

8. **ENTRANCE/EXIT CRITERIA:**

   a. Entrance: The effort described above can only be executed if there is an established funding line in the POM/BES to support this project.

   b. Exit: Update of the Air Force POM/BES.

9. **KEY INPUTS AND OUTPUTS:**

   a. Inputs:
      (1) Update Phase 0 cost estimate and its associated groundrules and assumptions (D20a).
      (2) Air Force decision to pursue material solution (C7).
      (3) MNS should be completed by user (C13).

   b. Outputs:

POM submission to AF/XOR (B8).

BES submission to SAF/FMB (B8).

10. KEY REFERENCES: The following documents provide information on the Biennial Programming, Planning, and Budgeting System(BPPBS):

a. DoDI 7045.7, Implementation of the Planning, Programming, and Budgeting System (PPBS), 23 May 84.

b. AFP 172-4, The Air Force Budget Process, Oct 87.

c. POM Guidance, issued bi-annually from AF/PE, usually around June of odd numbered years.

d. AFSC Financial Management Handbook, Chapter 1, Nov 92.

11. IMPLEMENTATION TOOLS: "The PPBS Primer," 7th Edition, Jan 93. This document, while still "draft," is published by the Directorate of Programs and Evaluation, Department of the Air Force, and provides a valuable description of the current PPBS process. This is one of the few documents that describes the current process, and it does so in detail. Further, it defines the activity schedule for the development of the POM.

12. PLANNING GUIDANCE:

a. Duration: Approximately 9 months. Normally the POM process starts in the spring of odd numbered years when the Air Staff provides each MAJCOM with a current repriced AF baseline and a MAJCOM-specific baseline. In the fall of the odd numbered years, the MAJCOMs present their POM proposals to HQ USAF. ASC involvement usually starts in June and continues through September.

b. Constraints:

(1) The supporting cost estimate will have to be done at a very high level because very little is known about how the program will be structured. Because of this, the estimate should only address the POM years. The whole purpose of an estimate and a POM at this time is just to ensure project funding is available when a favorable MS 0 decision is made.

(2) The using MAJCOM will have to prioritize their requirements. As the budget becomes tighter during this drawdown period, hard choices will have to made if new starts are to receive funding.

c. Constraints: The ASC project manager needs to stay in constant contact with the MAJCOM POC and the Program Element Monitor (PEM). The PEM is the Air Force overall focal point for his or her programs and must interface with the Resource Allocation Team to ensure his Program Element (PE) is supported properly. A few weeks of the project manager's and cost analyst's time may be required to prepare the POM input and answer what-ifs and other questions.

d. Lessons Learned: During the Air Staff POM deliberations and reviews, it is important that the project managers keep in close contact with the project representative(s) in AF/XO (and SAF/AQ, if someone has been identified). This is important to help resolve issues that may arise, and to ensure that they fully understand all the pertinent aspects of the project, and can defend the projected resource requirements. Also, development of the POM is a comprehensive and complex task, and the information requested can be expected to change with every submission. Therefore, the POM focal point in the project office needs to ensure that (s)he is not only in compliance with the formal tasking and

the local budget staff instructions, but also satisfies the information and documentation needs of the Air Staff project representative.

e. Best Practices: After submission of the POM package, the project office should posture itself to be able to respond effectively to programmatic questions, and to be able to generate quantitative answers to Air Staff requests to develop and price out program variations to the POM submission. The capability to generate this "what-if" information in a timely (and quality) manner is important, since the reconciliations and rankings to be performed by the Resource Allocation Teams may require modifications to the MAJCOM POM requests and programs in terms of funding levels, quantities, schedules, or other programmatic aspects. If a project office is unable to provide the necessary information in time to support the decision makers, the project may not supported or approved withsufficient funding levels. Get AF/AQ involved as early as possible.

f. Traps:

(1) Lack of clear explanation/documentation that this budget wedge is anything more than just an initial budget line and isn't backed up by an estimate of a real program (i.e., estimate doesn't represent a full estimate of the anticipated program). Sometimes these estimates can become engraved in stone even before an official approach has been agreed on (i.e., new aircraft or mod existing aircraft); that's why we recommend only estimating from MS 0 decision through POM years.

(2) If the POM is the first for the project, the submission will be considered a "New Start," and identified as such. There may be additional documentation requirements and a higher level of review for these programs, since there is not an existing funding line. Due to this, the project office must be especially prepared to defend project requirements.

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1. **ELEMENT:** C16, TBS 1.1.4.1 (IFC 93-3)

2. **ELEMENT TITLE:** Update Phase 0 Plans (Lead MAJCOM)

3. **ELEMENT OWNER(S):** Lead Major Command (MAJCOM) as designated by the Phase 0 PMD. For Air Force-led Phase 0 efforts, the lead MAJCOM is typically one of the Operating Commands.

4. **ELEMENT STAKEHOLDER(S)** Air Staff (USAF/XOR/TEP/INX, SAF/AQX/FMC), Operating Command(s), Air Force Materiel Command (AFMC/CC, XR), AFMC Product and Air Logistics Centers (PCs/ALCs).

5. **REQUIREMENT:**

AF Regulation 800-1, 16 Feb 90, "Air Force Acquisition System," paragraph 5.c, identifies the acquisition management responsibilities of Air Force acquisition managers.
AF Instruction 10-601, 1 Oct 92, "Mission Needs and Operational Requirements Guidance and Procedures," Attachment 2, identifies the Major Command (MAJCOM) and Field Operating Agency (FOA) pre-Milestone I responsibilities.

6. **PURPOSE/OBJECTIVE(S):**

a. Purpose: To complete Phase 0 planning and organize to execute the Milestone Decision Authority (MDA) Phase 0 direction as provided through the Acquisition Decision Memorandum (ADM) and the Program Management Directive (PMD).

b. Objective(s):

(1) *Phase 0 Plans Approval* - After updating the Phase 0 plans to account for PMD direction, the lead MAJCOM should obtain appropriate approval(s) before executing the plans. The appropriate level(s) of approval will depend on the significance of the activity and should be addressed by the Phase 0 PMD.

(2) *Establish Required/Desired Steering and Working Groups* - The lead MAJCOM may be directed by the PMD, or may want, to establish some steering or working groups to help direct, manage, or execute some of the lead MAJCOM Phase 0 responsibilities.

7. **DESCRIPTION:**

a. *Updating the Phase 0 Plans* - Upon the completion of the Milestone 0 reviews and MDA approval of concept study efforts, the MDA issues an ADM (see A9 and B9). After receipt of the ADM, USAF/XOR completes and issues the Phase 0 PMD (see B10). The lead MAJCOM must ensure the previously developed Phase 0 plans (see C14 and D20) satisfy the direction provided by the ADM and the PMD, as issued. If the lead MAJCOM was actively involved with the drafting of the ADM and PMD, and proactive at addressing issues raised throughout the Milestone Review process, there should be no surprises regarding the content of either document. In this case, the draft plans developed during the the Milestone Review process should need little or no modification, and may be ready for immediate implementation. After any needed modifications have been completed, final coordination is obtained from all participating organizations, and final approval of the plans is made by the appropriate approval authority, as established by the PMD. Upon final approval, the plans are baselined and used by the lead MAJCOM and all participating organizations as the basis for executing and controlling all Phase 0 activities. Throughout Phase 0, changes in direction, strategy, resources, etc., must be monitored and evaluated by the lead MAJCOM and appropriate participating organizations for their impact to the baseline plans. For significant changes, the plans may need to be reworked, recoordinated and approved, and then rebaselined.

b. *Establishing the Steering and Working Groups* - During the Milestone Review process, the lead MAJCOM should have begun organizing the resources needed to achieve the Phase 0 objectives. This activity includes the identification and establishment of any desired or required steering and/or working groups. Steering and working groups are one-time, periodic, or on-going activities which pull together appropriate management and/or technical expertise to direct, assist, guide, or execute an assigned task. Steering groups are typically formed to provide management oversight, guidance, advice, or approval authority for specified activities. Working groups typically formed to manage and execute a specified task. Any number of these groups may be formed at the lead MAJCOMs' discretion to support their accomplishment of assigned Phase 0 responsibilities; however, some groups may be directed by the PMD or other authority. Two particular groups, the Concept Action Group (CAG) and the Study Advisory Group (SAG), will typically be formed and led by the lead MAJCOM for Phase 0 efforts.

(1) *Concept Action Group (CAG)* - The CAG is a working level (0-6 and below) steering group, established and led by the lead MAJCOM to manage Phase 0 concept studies and the Cost and Operational Effectiveness Analyses (COEA). The term "CAG" is typically associated only with ACAT I designated Phase 0/I efforts. For ACAT II-IV efforts an equivalent group may be formed, but is typically called a "study team." Unless directed by the Phase 0 PMD, the establishement of the CAG (or study team) by the lead MAJCOM is optional. It is considered a best practice, however, that the lead MAJCOM seriously consider such a group for all Phase 0 efforts. The specific responsibilities of a particular CAG (or study team) are determined by the lead MAJCOM, but should typically include the following:

Manage the development of the Phase 0 concept studies and the COEA.

Ensure all Phase 0 study objectives are established and appropriate plans and schedules are completed and maintained to increase the likelihood that all study objectives are met in a timely manner. Some examples of the CAG (or study team) responsibilities in this regard are to:

Validate all study objectives.

Provide study planning guidance to implementing organization(s).

Review and coordinate on implementing organization(s) study plans and schedules, including the COEA I Plan.

Ensure Phase 0 study plans and schedules conform to ADM and PMD direction.

Ensure implementing organizations have and use approved models and data bases for all studies and analyses. Some examples of the CAG (or study team) responsibilities in this regard are to:

Notify AF/IN and/or DIA to develop/update system threat assessment.

Establish approved sources for needed data on existing weapon systems.

Establish approved models for accomplishing Phase 0 study tasks.

Identify and assign data management responsibilities.

Identify all alternative concepts to be studied during Phase 0. Some examples of the CAG (or study team) responsibilities in this regard are to:

Identify any materiel alternatives to be studied beyond those directed in the ADM and PMD.

Establish the current capability to which all materiel alternative concepts will be compared against through the COEA

Recommend all alternatives and corresponding configuration(s) to be submitted to the SAG and the MAJCOM/CC for approval for inclusion in the COEA.

Review and coordinate on the results of the COEA and the Draft COEA Report prior to forwarding for further reviews and approvals. Based on the results of the COEA, make recommendations on the preferred alternative(s) and configurations(s) to be carried forward for the Milestone Review.

CAG membership is determined by the lead MAJCOM, but AFMC representation on the CAG (or Study Team) should minimally include representation from AFMC/XR and FM and the PCs/ALCs. The PC/ALC, membership should minimally include at least one qualified individual from each of the following technical disciplines: studies and analysis, systems engineering, logistics, test, financial management, intelligence, and the laboratory. Other typical organizational participation on the CAG is discussed in AFMC Pamphlet 173-1, Section 3. The CAG meets periodically, as required. Early in Phase 0 the CAG may meet once every other week, or every month. As the Phase 0 activities mature, the need for the CAG will be less frequent, and they may meet only once a quarter, or after completion of specific project milestones. Once initiated, the CAG will typically exist until the Phase I COEA has been approved.

(2) *Studies Advisory Group (SAG)* - The SAG is a senior-level (0-6 and above) management oversight group established and led by the lead MAJCOM to ensure the Operating Command, Implementing Command, and decision makers continue in concert througout the Phase 0 concept studies and the Cost and Operational Effectiveness Analyses (COEA). Unless directed by the Phase 0 PMD, the establishement of the SAG by the lead MAJCOM is optional. It is considered a best practice, however, that the lead MAJCOM seriously consider such a group for all Phase 0 efforts. The specific responsibilities of a particular SAG (or study team) are determined by the lead MAJCOM, but should typically include the following:

Direct the development of the Phase 0 concept studies and the COEA.

Provide management oversight of the CAG (or study team).

Ensure all Phase 0 study objectives are established and appropriate plans and schedules are completed and maintained to increase the likelihood that all Phase 0 study objectives are met in a timely manner. Some examples of the SAG responsibilities in this regard are to:

Validate and approve all study objectives.

Provide guidance to the CAG (or study team).

Review and approve Phase 0 study plans and schedules, including the COEA I Plan.

Ensure Phase 0 study plans and schedules conform to ADM and PMD direction.

Approve all alternatives, beyond those directed by the PMD, to be studied during Phase 0.

Review and approve all alternatives and corresponding configurations to be submitted for lead MAJCOM/CC approval for inclusion in the COEA. The SAG and/or the lead MAJCOM/CC can only eliminate alternatives not directed by the ADM or PMD. Recommended alternatives and corresponding configurations are supplied by the Implementing Command through the CAG (or study team).

Review and coordinate on the results of the COEA and the Draft COEA Report prior to forwarding for further reviews and approvals. Based on the results of the COEA, approve CAG (or study team) recommendations on the preferred alternative(s) and configurations(s) to be carried forward for the Milestone Review.

SAG membership is determined by the lead MAJCOM, but should consist of senior representatives from the operating command, AFMC and PCs/ALCs, SAF/AQ and FM, USAF/XOR, AFSAA, AFCAA, and others as required. The SAG will typically only convene at the request of the lead MAJCOM or after completion of specific project milestones where specific approvals may be required. Once initiated, the SAG will typically exist until the Phase I COEA has been approved. The SAG may be reestablished, as required, to review and approve Phase II-IV COEAs.

8. ENTRANCE AND EXIT CRITERIA:

a. Entrance Criteria:

Concept Studies Approval - When the Milestone Decision Authority (MDA) is satisfied with the MNS and any requested Phase 0 planning information, approval is given to proceed with Phase 0 concept studies. The MDA will issue an ADM, and AF/XOR will issue a PMD. After receiving these documents the lead MAJCOM will update Air Force Phase 0 plans as required to bring them in line with the guidance provided by the ADM and PMD.

b. Exit Criteria:

(1) *Phase 0 Plans Updated and Approved* - After receiving the PMD, the lead MAJCOM will ensure Air Force Phase 0 plans are updated as required to bring them in line with the direction provided by the ADM and PMD. Once final approval is made by the designated approval authority, the plans are baselined and then executed.

(2) *Steering and Working Groups Established* - If the approved Phase 0 plans identify the need or desire for any management or technical support groups, charters should be drawn up and approved by the lead MAJCOM to establish them. Once established, these groups should begin to execute their responsibilities as required.

9. KEY INPUTS AND OUTPUTS:

a. Key Inputs:

(1) *Acquisition Decision Memorandum (ADM) (see A9 and B9)* - The ADM documents the decisions made as the result of the Milestone Decision Review. The ADM is signed and issued by the Phase 0 MDA. For DAB designated activities (typically ACAT ID efforts), the MDA will be the USD(A) (see A9). For non-DAB designated activities (typically ACAT IC and ACAT II-IV efforts), the MDA will be the Service Acquisition Exectutive (SAE) or whomever the SAE delegates this authority to (see B9). The Phase 0 ADM will accomplish the following for Phase 0:

Define the minimum set of alternative concepts to be examined.

Identify the lead organization(s) for the study efforts.

Establish any exit criteria information or analyses that must be presented at MS I.

Identify the dollar amount and source of funding for the study efforts to be conducted.

(2) *Program Management Directive (PMD) (see B10)* - The PMD is the official Air Force document used to direct acquisition or modification responsibilities to appropriate Air Force MAJCOMs for the development, acquisition, or modification of a specific weapon, subsystem, or piece of equipment. The Phase 0 PMD is issued by USAF/XOR and will accomplish the following for Phase 0:

Designate the lead MAJCOM.
Identify and direct all participating organizations.

Identify the MAJCOM responsible for establishing the CAG (if required) and for leading the concept studies.

Identify funding sources and approved study alternatives.

Briefly address the purpose, study requirements, required documentation, and schedule considerations for the Milestone I (MS I) decision.

Establish Air Staff, SAF, Joint Staff, and OSD review and coordination procedures for MS I decision.

The Phase 0 PMD will incorporate and expand on the direction provided by the ADM. It is required by the lead MAJCOM and other participating organizations to identify the funding source and amount, and justify the further expenditure of resources for the planned Phase 0 activities.

(3) *Draft Phase 0 Plans (see C14)* - These are the draft plans developed by the lead MAJCOM prior to the Milestone Decision. These plans provide an integrated Air Force Phase 0 planning position regarding the following:

Phase 0 purpose, objectives, constraints, and assumptions.

The proposed strategy and organization for accomplishing Phase 0.

Identification of the tasks and estimates of the required schedule and resources needed to accomplish Phase 0.

The lead MAJCOM must ensure that this information, and all organizational plans based upon it, are consistent with the Phase 0 ADM and PMD direction.

(4) *DIA and USAF/IN Threat Support (see A10 and B11)* - Intelligence support will be required throughout the execution of the Phase 0 activities, including the support to steering and working groups like the CAG and the SAG. The lead MAJCOM must ensure the appropriate support is requested from, and provided by, the intellegence communities.

b. Key Outputs:

(1) *Approved Phase 0 Plans* - After the lead MAJCOM and all of the participating organizations have accounted for ADM and PMD direction and have updated and coordinated Phase 0 plans, the lead MAJCOM will forward the documented Air Force planning position to the designated approval authority for approval. Once approved, these plans become the baseline for Air Force management and control of the Phase 0 activities. Typically the approval authority for these plans will reside with the SAG or the lead MAJCOM/CC. For DAB designated programs, however, approval authority for all or some of the plans may reside with USAF/XO, the CSAF, the SAE, the PEO (if one has been identified), or OASD(PA&E). The required review and approval procedures should be identified by the Phase 0 PMD.

(2) *Steering and Working Group Charters* - Each steering or working group formed by the lead MAJCOM should have a charter approved by the lead MAJCOM which identifies group functions, responsibilities, organization, membership, and roles and responsibilities for the membership within the group. This charter should have ties back to the PMD and provide all of the necessary direction the group needs to operate. The charter must be defined in enough detail to distinguish the responsibilities of the steering or working group from the responsibilities of the other Phase 0 participants.

10. KEY REFERENCES:

DoD Directive 5000.1, 23 Feb 91, "Defense Acquisition," provides overall DoD defense acquisition policies.
DoD Instruction 5000.2, 23 Feb 91, "Defense Acquisition Management Policies and Procedures," Section E, paragraph 2, provides DoD policies on program plans.
AF Policy Letter 91M-001, 20 Jun 91, "Early Industry Involvement in Acquisition Planning," establishes SAF policies regarding early Industry involvement in acquisition planning.
AFMC Pamphlet 173-1, 30 Dec 92, "AFMC Cost and Operational Effectiveness Analysis (COEA) Guide," Section 3, discusses COEA organizational responsibilities, including the CAG and SAG.

11. PLANNING GUIDANCE:

a. DURATION:

(1) *Updating the Phase 0 Plans* - Assuming the ADM and PMD contain no suprises, the lead MAJCOM should allot at least 2-4 weeks to complete and obtain final coordination and approval of the Phase 0 plans. If the ADM and the PMD cause significant changes to the Air Force planning position, or add unexpected requirements or participants, considerably more time will typically be required to account for these changes. If the lead MAJCOM is anticipating such changes, for whatever reason, an additional 2-4 months is likely a better planning estimate for final Phase 0 planning approval.

(2) *Establishing Steering and Working Groups* - Developing the Charter for each of the steering or working groups can typically be accomplished in less than 1 week. Formal coordination and approval of the Charter could take several weeks to several months, depending on the number of organizations involved. In most cases, these groups should begin to execute their responsibilities as soon as required. The formal approval of the Charter shouldn't necessarily delay their start.

b. CONSTRAINTS:

(1) *PMD Direction* - The direction provided by the PMD must be satisfied by the Phase 0 plans.

c. RESOURCES:

(1) *Updating the Phase 0 Plans* - To update the Phase 0 plans, the lead MAJCOM must engage the support of all of the participating organizations identified in the PMD. For Phase 0 efforts, this will typically include personnel from USAF/XOR, SAF/AQ, AFMC PCs/ALCs, the Office of Aerospace Studies (OAS), and other MAJCOM organizations. If there are Joint Service or international implications, then personnel from those organizations must also be involved.

(2) *Establishing Steering and Working Groups* - The PC/ALC should dedicate at least one resource to supporting the lead MAJCOMs planning and establishment of any steering or working groups they identify, like the CAG and the SAG. This support will help ensure that AFMC interests in the group are adequately addressed.

(3) *Funding* - Sufficient funding should be made available to allow necessary and appropriate travel for collecting and coordinating planning inputs from/with participating organizations and establishing the CAG and SAG.

d. LESSONS LEARNED:

(1) *Updating Phase 0 Plans* - None Identified.

(2) *Steering and Working Groups*

(a) *CAG (or Study Team) Membership* - All PC/ALC functional stakeholders should be involved early as members of the CAG because their technical expertise is necessary for solving typical CAG concerns.

e. BEST PRACTICES:

(1) *Updating Phase 0 Plans* - None Identified.

(2) *Steering and Working Groups:*

(a) *CAG (or Study Team) Involvement in Program Development* - The CAG should focus its efforts entirely on the concept studies and COEA analyses, and their application to requirements definition. The CAG should not attempt to guide program development or dictate acquisition strategies or schedules.

(b) *Establishing a CAG (or Study Team) or a SAG* - It is important that the PC/ALC doesn't attempt to force the formation of the CAG or SAG. It is the lead MAJCOM's responsibility to determine the need for these groups and establish them if needed.

f. TRAPS:

(1) *Updating Phase 0 Plans:*

(a) *PMD Direction* - The direction provided by the PMD should not be left open to interpretation. If you have any question regarding the intent of any information provided by the PMD, get it clairified before acting upon it.

(2) *Steering and Working Groups.*

12. IMPLEMENTATION TOOLS: None Identified.

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1. ELEMENT: C17, TBS 1.2.3.1 (IFC 93-3)

2. ELEMENT TITLE: Review and Approve COEA (Cost and Operational Effectiveness Analysis) I Plan

3. ELEMENT OWNER(S): Lead MAJCOM assigned by the program management directive (PMD)

4. ELEMENT STAKEHOLDER(S): SAF/AQ, HQ USAF/XOM, Operating MAJCOM, AFMC, Operating Test and Evaluation Agency, OASD(PA&E), concept action group (CAG), and the Implementing Command's Requirements and Fnancial management organizations.

5. REQUIREMENT: AF Regulation 800-1, "Air Force Acquisition System," paragraph 5.c, identifies the acquisition management responsibilities of Air Force acquisition managers.

6. PURPOSE/OBJECTIVE(S):

a. Purpose: The COEA plan is reviewed by the CAG, SAF/AQ, HQ USAF/XOM,and OASD(PA&E). Their job is to ensure focused, sustained progress in developing a useful analysis to support program decisions by the Defense Acquisition Board (DAB) or the Acquisition Executive.

b. Objective: The coordination process offers a unique opportunity to improve the quality and develop wide support for the COEA, as well as establishing the agreed-to Phase 0 methodology for accomplishing the comparative analysis (BLK-D48).

7. DESCRIPTION: The plan should be coordinated with the Acquisition Command's Directorates for Requirements and Financial Management, SAF/AQ, and for ACAT ID programs, be reviewed with OASD(PA&E). This will help ensure that all logical, viable alternatives get a fair assessment and that parochialism is avoided. The process of writing the plan,(BLK D23), and reviewing the plan, (BLK C17), is an iterative one and can cycle back and forth until approval is reached. The reviews will ensure that parties agree on each organization's responsibilities, the acquisition issues, alternatives to be studied, and the analysis methodology and assumptions.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The establishment of the CAG or study group, (BLK C16) and the completion of the COEA I plan, (BLK D23).

b. Exit: The approved draft COEA I plan.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Establishing the CAG or study group, (BLK C16).
(2) Writing the COEA I Plan, (BLK D23).
(3) Updating the COEA I Plan, (BLK D37).

b. Outputs:

(1) Conducting COEA Comparative Analysis, (BLK D48).
(2) Selecting COEA I Concepts, (BLK C21).

10. KEY REFERENCES:

a. AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93.

b. AFPD 10-6, Mission Needs and Operational Requirements, 19 Jan 93.

c. DOD 5000.2-M, Defense Acquisition Management Documentation and Reports, Feb 91.

d. AFMCP 173-1, AFMC COEA Guide, 30 Dec 92, paragraph 2.2.6, Guide to the Review Process.

11. IMPLEMENTATION TOOLS: AFMCP 173-1, AFMC COEA Guide, 30 Dec. 92, paragraph 2.2.6, guide to the review process.

12. PLANNING GUIDANCE:

a. DURATION: Iterative.

b. CONSTRAINTS: None Identified.

c. RESOURCES: None Identified.

d. LESSONS LEARNED:

(1) Early coordination is crucial to avoid disconnects and revision late in the COEA development process or near the Milestone I/IV scheduled decision.

(2) It is common for the review and coordination to be done in an ad hoc and informal manner by the study group. A formal process needs to be followed in order to get a better product.

(3) COEA contractors should not review their own plans.

e. BEST PRACTICES:

(1) An excellent reference on the review process can be found in AFMCP 173-1, paragraph 2.26 "Review Process."

(2) OASD(PA&E) should be contacted during the review. This will allow for their concurrence on the alternatives analyzed. If not done, could cause major delays later on.

f. TRAPS: PA&E has been known to try to add alternatives or change scenarios late in the analysis process. Try to get PA&E's written concurrence or coordination on the COEA plan.

1. **ELEMENT:** C19, TBS 1.2.2.1 IFC 93-3

2. **ELEMENT TITLE:** Develop Draft ORD I

3. **ELEMENT OWNER(S):** Operating MAJCOM

4. **ELEMENT STAKEHOLDER(S):** Air Force Materiel Command (AFMC), Product Center (ASC), and Industry.

5. **REQUIREMENT:**

a. DOD Directive 5000.1, Defense Acquisition, 23 Feb 91, Part 2, Paragraph B.6, states how the ORD interacts with the requirements generation and acquisition management system through Phases and Milestone decision points.

b. DOD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 4, Section B, states the basis for the determination, evolution, documentation, and validation of mission needs and system performance requirements.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: Identify how a system will operate, deploy, employ, and be supported

b. Objective: During Concept Exploration and Definition, it provides initial requirements guidance for Implementing and Participating Commands and agencies to use in assessing alternative design concepts.

7. **DESCRIPTION:**

a. The lead operating Major Command (MAJCOM) will prepare the initial ORD I describing pertinent quantitative and qualitative performance, operation, and support parameters, characteristics, and requirements for each specific candidate weapon system. While developing this ORD, the operating MAJCOM may request AFMC assistance in evaluating potential materiel alternatives and to identify opportunities for cost, schedule, performance, and support tradeoffs. The Product Centers will provide expertise in evaluating alternative technical solutions to meet requirements, guiding laboratory efforts relating to emerging technologies, helping in planning to prioritize exploratory and advance development reviews and assisting in evaluating executability of programs. Product Centers, industry, or a support contractor can conduct trade studies or other analyses--specifically the Cost and Operational Effectiveness Analysis (COEA)--to provide quantitative data to assist in establishing or evaluating potential requirements.

b. The Acquisition Decision Memorandum (ADM) from the Milestone 0 decision directs studies, designates military department to conduct concept studies, and identifies a source of funding. The results from the concept studies provide the user with necessary data for translating the broadly stated needs (from the Mission Need Statement (MNS)) into operational performance parameters and threshold (minimum acceptable) operational requirements for the most promising system concept(s). During Concept Exploration and Definition, the number of parameters and threshold values should be kept to a minimum. Objectives may be established. The purpose is to facilitate future design tradeoffs. The ORD will continue to evolve after Milestone I or program approval. This document is the bridge connecting the MNS to the APB and the specifications for the system concept(s). A specific format and a formal list of required coordination agencies are annotated in DOD 5000.2-M, Part 3, Attachment 1, and AFI 10-610, Attachment 6, respectively.

c. At the Department of Defense (DOD) level, the ORD includes an operational capability description; existing systems shortcomings and threats; capabilities required; support concept; including

draft maintenance concept, infrastructure support and interoperability; force structure; and operational need dates. The ORD will establish objectives and threshold requirements for those performance capability parameters necessary to characterize the proposed system(s).

d. The Air Force has expanded the ORD/RCM documentation requirements in many areas. The most significant is a mandatory attachment called the Requirements Correlation Matrix (RCM). The RCM provides the basis for operational needs and requirements to be included in the Integrated Program Summary (IPS), System Maturity Matrix (SMM), Test and Evaluation Master Plan (TEMP), and Acquisition Program Baseline (APB). The RCM is not a stand-alone document, but a quick reference listing.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Program Management Directive (PMD) issued.

b. Exit: Draft ORD/RCM ready for Air Force coordination and operating MAJCOM approval.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Concept of Operations (C2)

(2) Mission Needs Statement (C12)

(3) Cost and Operational Effectiveness Analysis (COEA) Results (C23)

(4) COEA Comparative Analysis (D48)

(5) Trade Studies results from concept studies

(6) MAJCOM Preferred Alternative(s) Selection (C25)

b. Output: Draft ORD/RCM for Air Force coordination and lead MAJCOM/CC approval (C26).

10. KEY REFERENCES:

a. AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, paragraphs 1.5 and 1.6, and Attachments 6 and 7. This regulation defines what ORD/RCM are and the procedures to generate the documents.

b. DOD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 4, Section B states, the basis for the determination, evolution, documentation, and validation of mission needs and system performance requirements.

c. DOD 5000.2-M, Defense Acquisition Management Documentation and Reports, Feb 91, Part 3. This directive contains the ORD format and content.

11. IMPLEMENTATION TOOLS:

a. AFMCP 173-1, Draft AFMC Cost & Operational Effectiveness Analysis (COEA) Handbook, Aug 92. This handbook defines the interrelationship of the ORD with the COEA.

b. Lessons learned are documented in the Automated Lessons Learned Capture and Retrieval System (ALLCARS) maintained by ASC/CYM at Wright Patterson AFB OH 45433-5000, DSN 785-3454.

12. PLANNING GUIDANCE:

a. DURATION: To draft an ORD for coordination may require 6 to 18 months to complete for a Milestone I decision. Such factors as complexity, level of coordination and approval, etc., determine the timelines. Normal suspense for completing a draft ORD is 180 days from time of tasking (after issuing the PMD). This is predicated on pending Milestones, Reviews, Summits, etc. If the ORD is dependent on accomplishing a COEA (as it should be) a longer time period will be required.

b. CONSTRAINTS: The lead MAJCOM cannot complete the first ORD until the lead MAJCOM COEA I report is available. A draft ORD may be written early in Concept Exploration phase to help focus or identify required trade studies.

c. RESOURCES: The operating MAJCOM should assign an action office to ensure all sections are incorporated into the ORD. The resources and man-hours are two action officers on a part-time basis for 6-18 months depending on the complexity of the project.

d. LESSONS LEARNED:

(1) Operational requirements must describe the overall mission, the preferred alternative(s), and anticipated operational scenario downstream. This will promote the necessary program and integrated logistics support planning functions. Failure to do so jeopardizes the balance between affordability, system performance, reliability and supportability for initial operational capability (USNLL #10069).

(2) The operating MAJCOM must define a minimum set of operational requirements, capabilities and performance parameters in the ORD by Milestone 1. Without a clear understanding of these requirements and any associated objectives, contractor proposal for the Demonstration and Validation RFP may make an apples-to-apples comparison difficult and increase the complexity of source selection.

e. BEST PRACTICES:

(1) The requirements in the ORD/RCM become the basis for operational performance criteria and testing. When establishing a requirement, make sure it can be tested given the limits of the test equipment and technology. It will cause perturbations later in the program if operational testers cannot find a way to verify ORD/RCM requirements due to test/measurement technology limitations.

(2) The operating MAJCOM needs to minimize specific key parameters for the total system performance whenever possible to allow maximum flexibility within subsystems as the system evolves. Performance standards specified as minimum acceptable should be threshold values. The ORD objectives provide an opportunity for the user to identify operationally significant performance above the thresholds. In later program phases, the ORD may reflect different thresholds as understanding of the system matures. This is called evolutionary requirements definition as described in DODI 5000.2, Section 4-B.

f. TRAPS: Reference above "Best Practices and Lessons Learned."

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1. **ELEMENT:** C21, TBS 1.2.3.2 (IFC 93-3)

2. **ELEMENT TITLE:** Select COEA I Concepts

3. **ELEMENT OWNER(S):** Operating Commands

4. **ELEMENT STAKEHOLDER(S):** Product and Logistic Centers.

5. **REQUIREMENT:** DODD 5000.1, Part 1, paragraph 4b; DODI 5000.2, Part 4, Section E

6. **PURPOSE/OBJECTIVE(S):**

a. Purpose: For the Concept Action Group (CAG) or some other assembly to decide which system alternatives are studied in support of the Cost and Operational Effectiveness Analysis (COEA).

b. Objectives: By the process of elimination and by direction in the Milestone 0 Program Management Directive (PMD), a list of feasible alternatives will be determined for use in the COEA activities.

7. **DESCRIPTION:** The CAG or equivalent reviews all of the system solutions studied during the Systems Requirements Analysis (D37) and presented during the Alternative Systems Review (D45), and selects those deemed reasonable and appropriate for further study in the COEA process (D48) and drafting the Operational Requirements Document (ORD -- C19). The CAG or equivalent must also include for further study a wide range of feasible and significant alternatives that might satisfy the mission need -- such as modifying existing systems, systems under development, systems used by other Services, or systems being used or developed by U.S. allies. Each alternative description should include the system capabilities against projected threats with varying scenarios, its constraints, and systems risks and uncertainties to determine availability. Alternatives are not just limited to hardware and software used to fulfill the need -- variations on doctrine and tactics should again be considered as was done prior to the writing of the Mission Need Statement (C7). If this review did not consider all of the alternatives that might satisfy the mission need, then those alternatives need to be included in the Systems Requirements Analysis (D37) concept update.

8. **ENTRANCE/EXIT CRITERIA:**

a. Entrance: Alternative Systems Review (D45) completed.

b. Exit: A list of selected alternatives under consideration to fulfill the user's need for use in the Program Alternatives Analysis (PAA - D46) and COEA Comparative Analysis (D48).

9. **KEY INPUTS/OUTPUTS:**

a. Input: Concept exploration study and study team matrix of alternative solutions (D45).

b. Output: A list of selected alternatives under consideration to fulfill the user's need for use in the PAA (D46) and COEA (D48).

10. **KEY REFERENCES:** DODI 5000.2, Part 4, Section E; DOD 5000.2-M, Part 8; AF10-601, Attachment 5; AFMC Cost and Operational Effectiveness Handbook (AFMCP-173-1); OASD/PA&E Cost and Operational Effectiveness Analysis Guidelines (DOD 5000.1-G).

11. **IMPLEMENTATION TOOLS:** None identified.

12. PLANNING GUIDANCE:

a. DURATION: Depending on the size of the project, this process of selecting the alternatives studied in the COEA may take an afternoon or as many as several weeks to several months to accomplish. Air Mobility Command (AMC) utilizes a series of CAG working group meetings to recommend the selections, with the CAG making the final selections as a committee. Air Combat Command (ACC) utilizes action officers to do the research and make the selections, which would take less time than a committee decision.

b. CONSTRAINTS: None identified.

c. RESOURCES: AMC CAGs consist of colonels with working groups of lower ranking officers and civilians. ACC utilizes small teams of action officers (or maybe just one action officer on a small project) to act as the CAG.

d. LESSONS LEARNED: There are usually more alternatives that should be explored/analyzed than what is initially considered. Senior leaders will frequently add to the list during the COEA process.

e. BEST PRACTICES: The Systems Requirements Analysis should have already included the "wide range of feasible and significant alternatives that might satisfy the mission need" as described in paragraph 7 above. This set of alternatives may be contained in the Program Management Directive (PMD) at Milestone 0 (B10), included during the CAG's formulation of the COEA plan (element C16), or identified during the COEA plan review (C17). Should any viable alternatives not be addressed in the Alternative Systems Review, the project will suffer delays while those overlooked alternatives are studied. Coordinate the COEA activities with OASD/PA&E to ensure a favorable review of the results (C29).

f. TRAPS: None identified .

1. **ELEMENT:** C22, TBS 1.2.3.8.1 (IFC 93-3)

2. **ELEMENT TITLE:** Review Cost Estimate and Update Budget Request [CC# 93-0117]

3. **ELEMENT OWNER:** Operating Command

4. **ELEMENT STAKEHOLDER(S):** SAF/AQ/FMB, AF/XOR, and Project Manager.

5. **REQUIREMENT:** DoD Directive 7045.14, The Planning, Programming, and Budget System (PPBS), 22 May 84, and Air Force Instruction 10-601, paragraph 1.2.3.

6. **PURPOSE/OBJECTIVE(S):**

a. Purpose: The purpose of this activity is to obtain Operating Command approval for the project office estimate of the anticipated preferred program alternative.

b. Objective: Get the program office cost estimate included into the Air Force budget or approved for use to support other exercises, as appropriate.

7. **DESCRIPTION:** At this point in the project, the Operating Command should have selected the program alternative (C25) that will be proposed for the Milestone I decision review. Therefore, if there is an Air Force Program Objective Memorandum (POM) exercise planned (B13), and program funding will be required in the POM years, the Program Cost Estimate (D47) should be updated to quantify and document the financial requirements for the preferred program for incorporation into the Operating Command POM submission.

a. There are two activities in this element. First, the project office estimate of the program should be completed and provided to the Operating Command for review and approval. This should be accomplished prior to the use of the estimate for budget submissions, or other planning activities. The review should be accomplished to assure that the estimate is representative of the program that will be recommended to address the Command's operational deficiencies. The magnitude and extent of the review could be expected to vary, based on the ACAT level of the program, the magnitude of the program costs, and the general level of interest in the program. The project OPR in the Operating Command should be responsible for coordinating the specific review requirements. If the Operating Command has established a Concept Action Group (CAG) to direct and oversee the project Phase 0 study activities (C16), the CAG should perform this function, if the CAG has been given the authority to review/approve the project activities. For the purpose of this discussion, it is assumed that a CAG has been established.

b. Secondly, when there is an opportunity to get the approved program estimate incorporated into the Operating Command POM submission to Air Staff (B13), this should be accomplished to get the project funding requirements approved. To achieve this, the CAG should work with the Project Office to ensure that a POM input is developed which meets the current CAG requirements and can be supported in the Operating Command POM review process. (Note: Since a delay may occur between the estimate completion (and approval) and the POM submission, fact of life changes may require the project office to develop and submit program and estimate variations in the POM). When the POM inputs are received from the Product Centers, the CAG should be prepared to address program issues, and support the project in the review process. Further, a CAG representative should serve as the interface with the Project Office when additional information or analysis excursions are required.

8. **ENTRANCE/EXIT CRITERIA:**

a. ENTRANCE: The need for the effort described above at this phase of the project should be primarily dependent on the anticipated ability to interject the estimated project costs into the Air Force

POM and to establish a preliminary financial position for the anticipated program. The CAG may also task the Project Office to generate program estimates to support other planning activities.

b. Exit: Approval of the project office estimate by the Operating Command, and if possible, inclusion of the estimate into the Air Force POM process (B13).

9. KEY INPUTS AND OUTPUTS:

a. INPUTS: The primary input for the estimate review is the Project Office Program Cost Estimate (D47). Additionally, the results of the Preferred Alternative(s) Selection (C25) should be useful. The inputs to the POM include the fiscal and resource constraints placed on the Operating Command in the MAJCOM specific BPPBS baseline (normally received in the spring of the odd-numbered years), and the POM Preparation Instructions (normally received from AF/PE in the summer).

b. OUTPUTS: An approved project estimate for planning purposes and/or Operating Command POM submission to HQ USAF (B13).

10. KEY REFERENCES: The references below provide more specific implementation guidance.

a. AFP 172-4, The Air Force Budget Process, Oct 87 - Describes the Air Force budget process.

b. DoDI 7045.7, Implementation of the Planning, Programming, and Budgeting System (PPBS), 23 May 84 - Describes the budget process within the Department of Defense.

11. IMPLEMENTATION TOOLS: "The PPBS Primer," 7th Edition, May 93. This document, is published by the Directorate of Programs and Evaluation, Department of the Air Force, and provides a valuable description of the current BPPBS process. This is one of the few documents that describes the current process, and it does so in detail. Further, it defines the activity schedule for the development of the FY96 POM. However, there is not a great deal of information on POM preparation at the field level.

12. PLANNING GUIDANCE:

a. DURATION: The time required for the CAG review of the estimate can be expected to be related directly to the level of communication between the CAG and the project office, the level of program definition, the approval of previous Project Office estimates, and the quality of the project office estimate and the estimate documentation. If the Project Office efforts have been well coordinated with the CAG, the review may be accomplished with a briefing on the estimate, or providing the analysis documentation to the CAG. However, if issues exist, the CAG review may be performed over the period of weeks, or longer, if the Project Office is tasked to perform further analysis. In the case of the POM, the Operating Command activities begin in the spring with the receipt of the MAJCOM-specific resource baseline, and end with the submission of the POM to HQ USAF in August-September.

b. CONSTRAINTS: The Project Office cost estimate will probably need to be performed at a very high level (not detailed) due to lack of program definition. Because of the top level approach, the estimating methods may not always be sensitive to estimating excursions required by the CAG. Additionally, the constraints inherent in the respective POM resource baseline may limit the Operating Commands ability to support the desired program.

c. RESOURCES: The composition of the CAG can be expected to relate directly to the level of interest in the project, projected costs, and complexity. A sampling of projects indicates that the Operating Command action officer for a project preparing for a MilestoneReview is typically a Major or Lt Colonel. However, the Concept Action Group, per se, is still a relatively new concept, and not widely used.

d. LESSONS LEARNED: It is desirable for the Project Office to formally coordinate with the CAG prior to the start of the estimating activity to ensure that all programmatic and estimating assumptions are fully understood. Further, during the development of the estimate, the project manager should remain in close contact with the CAG to ensure that any issues that might impact the analysis are addressed. During the Operating Command POM deliberations and reviews, it is important that the project managers keep in close contact with the project representative(s). This is important to help resolve issues that may arise, and to ensure that they fully understand all the pertinent aspects of the project and can defend the projected resource requirements.

e. BEST PRACTICES: After submission of the estimate to the CAG, the Project Office should posture itself to be able to respond effectively to programmatic questions and to be able to generate quantitative answers to CAG requests to develop and price out program variations and alternatives. In the case of the POM, this capability to generate quality "what-if" information in a timely manner (often within a few hours) is important, since the reconciliations and rankings that must be performed by the Operating Command must be supported in a timely manner. The exercises may require modifications to the project POM requests based on changes in funding levels, quantities, schedules, or other programmatic aspects. If the Project Office is unable to provide the necessary information, and in time to support the decision makers, the project may not be supported, or approved with insufficient funding levels. Further, if the Project Office is unable to provide a requested estimate, someone with even less information may generate one for the project.

f. TRAPS: If the estimate is the first to be presented to the CAG, it is imperative that the project office fully understand the requirements of the CAG, especially in terms of content, scope, assumptions, and the deliverable products. In the case of the POM, if this POM input is the first for the project, the submission will be considered a "New Start," and identified as such. There may be additional documentation requirements and a higher level of scrutiny and review for these projects/programs, since there is not an existing funding line. Due to this, the project office must be especially prepared to defend project requirements.

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1. ELEMENT: C23, TBS 1.2.3.9 (IFC 93-3)

2. ELEMENT TITLE: Staff and Coordinate Cost and Operational Effectiveness Analysis (COEA) I Report

3. ELEMENT OWNER(S): Operating Command

4. ELEMENT STAKEHOLDER(S): Secretary of the Air Force (SAF)/AQ/FM, USAF/XOR, Office of the Assistant Secretary of Defense (OASD) (PA&E), Air Force Materiel Command (AFMC), Under Secretary of Defense for Acquisition, Air Force Studies and Analysis Agency (AFSAA), Air Force Operational Test and Evaluation Center (AFOTEC), Product Center and other organizations participating in COEA I development.

5. REQUIREMENT:

a. AFPD 10-6, *Air Force Mission Needs and Operational Requirements*, 19 Jan 93, paragraph 1.6. This paragraph defines the COEA requirements.

b. AFI 10-601, *Mission Needs and Operational Requirements Guidance and Procedures*, 16 Feb 93, paragraph 1.4, Attachments 5 and 9. These paragraphs explain how to accomplish a COEA and the duration associated with drafting and coordinating of the document.

6. PURPOSE/OBJECTIVES:

a. Purpose: To prepare and obtain Operating Command 2-Letter and external review and approval of the draft COEA I report.

b. Objectives: To ensure all Air Force and other participants have a say in the COEA I Report and concur with the results. This can then be taken forward to HQ USAF and DoD for review with a solid and agreed to COEA I Report that is fully integrated with the Mission Need Statement(MNS), COEA and proposed Operational Requirements Document (ORD).

7. DESCRIPTION: The Operating Command has responsibility for preparing the COEA I Report and may contract out the effort, conduct it in-house, or ask the Acquisition Command, usually Product Center XR organization, to accomplish the analysis and prepare the COEA I Report. For the proper COEA report format, see DOD 5000.2-M, *Defense Acquisition Management Documentation and Reports*, Feb 91, Part 8, Attachment 1. To prepare this draft, the lead Operating Command must have information from and provide information to, i.e., an iterative relationship, C19 and D37B. The draft COEA I Report is then distributed to other participating organizations, including sister services when the project is a joint effort, for review and comment in accordance with AFI 10-601 and incorporating applicable comments into the final COEA I Report. This document then goes through an internal coordination process that ends with Operating Command signature. The Draft Report is then provided to Air Staff to prepare for the requirements summit, B14. HQ USAF/XOR reviews the draft report for Air Force Acquisition Executive approval for potential Acquisition Category (ACAT) I programs and coordinates the COEA I Report with the OASD (PA&E) prior to Milestone I. PA&E prepares a report summarizing the findings and assessing whether all reasonable alternatives were examined and whether the costs, benefits, and risks were adequately addressed. This assessment is circulated to all Defense Acquisition Board (DAB) members. For other ACAT levels, the Operating Command/CC approves the COEA I Report and

submits it to HQ USAF/XOR before a scheduled milestone review. HQ USAF/XOR then reviews the COEA I Report and submits it to SAF/AQX prior to Milestone I review.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance Criteria: For C23 to begin, the lead operating command needs to know which preferred alternatives were selected, C25, as well as all the data previously provided for selecting the preferred alternatives, C25, D47, D48, and D49.

b. Exit Criteria: Finalized COEA I Report signed by the Operating Command/CC.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: Besides the information identified in 8.a., the lead operating command will continually need to iterate its activities with the team building the Draft ORD I, C19, and the team working the concept definitions for the preferred alternative(s), D37B.

b. Outputs: The primary output is the Draft COEA I Report signed by the Operating Command/CC for submittal to be used in preparing for the summit review. Also, the report must be submitted to the team building the Draft ORD I, C19, and the team working the concept definitions for the preferred alternative(s), D37B to ensure all the documentation is integrated when presented to summit and DAB reviews.

10. KEY REFERENCES:

a. DOD 5000.2-M, *Defense Acquisition Management Documentation and Reports*, Feb 91, Part 8. This manual provides general procedures and guidelines for developing COEAs.

b. DOD Instruction 5000.2, *Defense Acquisition Management Policies and Procedures*, Feb 91, Part 4, Section E. This section provides the basis for developing COEA to support Milestone decision reviews.

c. AFI 10-610, *Mission Needs and Operational Requirements Guidance and Procedures*, 16 Feb 93, Paragraph 1.4 and Attachment 5. The instruction provides when to perform and how to prepare a COEA report.

11. IMPLEMENTATION TOOLS: AFMCP 173-1, Draft *AFMC Cost & Operational Effectiveness Analysis COEA Handbook*, Oct 92, Paragraph 2.2.3. This handbook explains in detail steps involved and specifics contained in COEA process and report.

12. PLANNING GUIDANCE:

a. DURATION: The majority of the effort in developing the COEA I Report is spent performing the analytical studies and comparative analysis. The documentation of the analysis should be accomplished within 180 days after "receipt of tasking" (Program Management Directive) in accordance to AFI 10-601. The COEA is the pacing item for Phase 0 efforts and is usually event driven. More time will be required. The drafter should negotiate this schedule as early as possible, as it will affect all subsequent events. Goals for achieving staffing and coordination are as follows:

(1) 50 days "for comment" review of draft report (AFI 10-601).

(2) 14 days to incorporate comments and prepare final report.

(3) 21 days for study team to brief the Concept Action Group (CAG) which then revises and approves the report.

(4) 35 days for internal coordination and Operating Command/CC approval. The time frame depends on the timing of the Phase 0 Requirements Summit, Milestone I and other pertinent reviews. The COEA I Report must be coordinated, approved by the operating command, and distributed at least 60 days before the Milestone I review, or 60 days before the Requirements Summit, if a Summit is scheduled.

b. CONSTRAINTS:

(1) If the lead operating command does not conduct a CAG to oversee the COEA effort, the normal forum to get all the stakeholders involved and resolve any issues prior to releasing the report has been eliminated. An extensive distribution and coordination process would be required as an alternative which could extend the review process. Cross flow of information is necessary in developing such a complex report.

(2) A major constraint could be the action officer doesn't have any say as to when the Summit or Milestone I decision should be scheduled. In this case the action officer will be forced to accomplish the staffing and coordination process within a pre-established schedule.

c. RESOURCES:

(1) The lead operating command should assign an action officer to ensure all sections of the COEA I Report are adequately addressed and applicable comments incorporated from internal and external organizations. A focal point from each operating command directorate receiving the report will be required in consolidating their comments.

(2) Functional representatives from external organizations receiving the report are needed to review, consolidate, and coordinate their comments.

d. LESSONS LEARNED:

(1) OASD PA&E plays a major role in the review and approval process. They need to be in the loop long before final review and approval. They want to be aware of the COEA I plan, methodologies used, and any other significant information. If you surprise them, it could be disastrous to your schedule and any previous work. On the positive side, they can offer valuable lessons learned from other service COEAs. Involve them carefully.

(2) The COEA I action officer normally has his hands full getting the document to the rightpeople and ensuring tasked organizations return comments on time. If the Milestone decision meeting or Summit date has been proposed or established, the action officer should make a review and approval schedule that backs up from those dates. It's important that this process be carefully planned and slack time be built in, if possible, especially for potentially controversial programs. To avoid this situation, the action officer should be proactive and recommend realistic milestone/summit dates.

(3) The acquisition action officer will have the same problem in responding to a schedule set by the lead operating command. The action officer needs to work with the lead operating command to ensure comments and coordination are accomplished when needed. The action officer should challenge unrealistic schedules.

(4) With all the coordination and working of comments, there are bound to be obstacles that require extraordinary effort to overcome, such as unforeseen issues, politics, and other differences of opinion. Work closely with coordinating offices before you formally coordinate with them. Stay within the bounds of approved/validated threats and scenarios.

(5) No procedures for conducting and coordinating a joint COEA have been established. This may cause problems in not identifying the appropriate stakeholders and possibly missing key and

unique information. If the appropriate stakeholders are not involved up front, then there is a potential for delays in obtaining coordination.

e. BEST PRACTICES:

(1) The lead operating command action officer should ensure all stakeholders are involved in thereview and coordination process and HQ USAF/XOR is kept in the loop. The lead operating command action officer could expedite this process by providing realistic (event-driven) coordination and approval schedules. The acquisition action officer also has stakeholders that shouldn't be left out. An important stakeholder who didn't get to comment can come back to haunt you.

(2) Each action officer should establish deadlines. However, the lead operating command should wait for critical comments, such as those from HQ USAF/XOR, SAF/FMC, SAF/AQX, AFOTEC, and AFSAA before proceeding on to the next phase.

(3) The lead operating command action officer needs to follow up on receipt of the COEA I report, and status of each reviewing organization's progress.

(4) The DOD component, in the process of performing a milestone I COEA, should identify the Measures of Effectiveness (MOE) to be used and show how these MOEs are derived from the MNS. Each COEA should include MOEs reflecting operational utility that can be tested. For those MOEs that cannot be directly tested, the COEA should show how changes in testable parameters or measures of performance can be related to changes in COEA MOEs.

f. TRAPS:

(1) The action officer shouldn't make the assumption that all organizations will be responsive with their comments/coordination. Maintain frequent contact with all applicable organizations.

(2) The lead operating command needs a contract vehicle to accomplishe COEAs if they electnot to use AFMC for this effort. The operating command needs to determine their COEA process and associated funding. This would eliminate any delays due to lack of funding.

1. ELEMENT: C25, TBS 1.2.3.7 (IFC 93-3)

2. ELEMENT TITLE: Select Preferred Alternative(s)

3. ELEMENT OWNER(S): Operating Command

4. ELEMENT STAKEHOLDER(S): AFMC, AFOTEC, SAF/FMC, AFSAA, USD(A), OASD (PA&E), AF/XOR.

5. REQUIREMENT: DOD 5000 series, Air Force Instruction 10-601

6. PURPOSE/OBJECTIVE(S):

a. Purpose: For the operating command's commander (or designate) to select a concept alternative or alternatives that satisfy the user's need and the approach that will be proposed as an acquisition program.

b. Objectives: For the Concept Action Group (CAG) or other assembly to make a recommendation to the commander for selection of a preferred alternative based on the findings of the Cost and Operational Effectiveness Analysis (COEA).

7. DESCRIPTION: The Concept Action Group (CAG) or equivalent has completed its extensive exploration of possible materiel alternatives and documented the results in the Cost and Operational Effectiveness Analysis (COEA) Report (D48), the Program Alternatives Analysis (D46), and Program Cost Estimate (D47) before briefing the operating command's commander (or designate). The COEA also documents the CAG's rationale for their recommendation for preferred concept alternative(s) which will become the basis for a project's Milestone I/IV documentation-- such as the System Threat Assessment Report (STAR -- D50), Acquisition Program Baseline (APB -- D51), Cost Analysis Requirements Description (CARD -- D52), Operational Requirements Document (ORD -- C19), and the Test and Evaluation Master Plan (TEMP -- D54). Until this actual selection of concept alternative(s) as solution(s) to meeting the user's needs by the operating command's commander (or designate), all of the documentation for an eventual Milestone I/IV decision has been generic in content and will have to be updated to reflect the alternative(s) selection.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Draft COEA completed with the CAG's recommendation for preferred concept alternative(s).

b. Exit: Operating command's selection of concept alternative(s) as the preferred solution(s) that satisfy the user's need.

9. KEY INPUTS/OUTPUTS:

a. Inputs: Draft COEA (D48) and draft ORD (C19).

b. Outputs: Preferred alternative solution(s), updated COEA Report approved by the operating command.

10. KEY REFERENCES: DODD 5000.1; DODI 5000.2; DOD 5000.2-M; AFI 10-601; AFMCP-173-1, AFMC COEA Handbook, August 1992.

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: The actual selection of the concept alternative(s) that will be proposed as an acquisition program most likely will be done during the briefing to the operating command's commander or designate based on the CAG's recommendations. The CAG's preparation for this briefing varies with the size and complexity of the project, the number of alternatives studied in the COEA, and the detail to which the commander needs information to make a justifiable selection.

b. CONSTRAINTS: None identified.

c. RESOURCES: The briefing to the operating command's commander (or designate) should be attended by the command's two-letter council participants or their representatives.

d. LESSONS LEARNED: None identified.

e. BEST PRACTICES: The CAG should be sure that all of its participants agree on their recommendation of the preferred alternative(s) that will be proposed as an acquisition program and the groundrules and assumption upon which the selection was made. This recommendation to the operating command's commander (or designate) should be coordinated throughout the applicable organizations within the command so that there are no surprises during the actual briefing.

f. TRAPS: None identified.

1. ELEMENT: C26, TBS 1.2.2.2 (IFC 93-3)

2. ELEMENT TITLE: Staff and Coordinate Operational Requirements Document (ORD) I (User)

3. ELEMENT OWNER(S): AF/XOR

4. ELEMENT STAKEHOLDER(S): AF/XOR, Operating Command, Implementing Command, AFOTEC, Participating Commands.

5. REQUIREMENT:

a. AFPD 10-6, Mission Needs and Operational Requirements, 19 Jan 93, Attachment 3, identifies ORD approval requirements.

b. DODI 5000.2, Defense Acquisition Management Policy and Procedures, 23 Feb 91, Part 4 (Section B), describes procedures for JROC validation of system performance requirements.

6. PURPOSE/OBJECTIVE(S):

a. Purpose: Staff and coordinate the ORD.

b. Objective: Approve the ORD.

7. DESCRIPTION: An initial ORD must be prepared in response to the Milestone 0 Program Management Directive (PMD). The Operating Command is responsible for the ORD. After the ORD is drafted (C19), the Operating Command distributes it for staffing and coordination in accordance with AFI 10-601 and local procedures (see below). The ORD is approved by the Chief of Staff of the Air Force (CSAF) after successful staffing and coordination. The ORD is the source of performance requirements for the APB (D51) and TEMP (D54). The ORD is also a major document reviewed at the Requirements Summit (ACAT I) (B14 and B15).

After the ORD is drafted (C19), the using command OPR distributes it "for comment" in accordance with AFI 10-601. Inputs are normally required within 45 days of receipt by addressees. AF/XOR, one of the addressees, distributes all ORDs for review and comment to the Air Staff and Secretariat, affected Services, CINCs, and Defense agencies, and provides a consolidated position to the OPR within 45 days. The second ORD phase of review is the final "coordination" phase. The using command coordinates changes from the "for comment" phase with all reviewing organizations.

The OPR then finalizes the ORD (final internal coordination), prepares it for operating MAJCOM/CC approval, and submits it to AF/XOR for CSAF approval at least 60 days before the Summit (ACAT I) (B14). All ORDs require CSAF approval.

After the ORD is approved and published, the OPR will distribute it and not change the ORD without coordinating with the applicable OCRs, including AF/XOR. The OPR will change the ORD after Summit and Milestone Reviews as required.

The Joint Requirements Oversight Council (JROC) may retain ORD validation and approval authority for some ACAT I programs, but usually delegates this authority to the appropriate Service Chief. The JROC will review the key parameters from the ORD that will be included in the Acquisition Program Baseline (APB). Approved ORDs are submitted by the approval authority to the appropriate Milestone Decision Authority (MDA) for action. Validation in this case confirms that the capabilities provided by the proposed system will fulfill the mission need. It also confirms that there is no other materiel alternative which will meet the need (including another Service or Allied system). Approval constitutes formal sanction and certification of the requirements document (ORD).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Start formal staffing and coordination when the COEA has been approved by CSAF and the ORD has been drafted.

b. Exit: End when the ORD has been approved by CSAF.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: CSAF approved COEA and Draft ORD.

b. Output: CSAF approved ORD.

10. KEY REFERENCES: In addition to required documents (see Paragraph 5), AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, Attachment 6, identifies ORD staffing and coordination procedures.

11. IMPLEMENTATION TOOLS: Individual using commands have local procedures.

12. PLANNING GUIDANCE:

a. DURATION: AFI 10-601 states the draft ORD should normally be prepared within 180 days of tasking (see 12.b., 12.d., and 12.f. for caution in using this as planning guidance). This 180 days includes draft preparation time and time for operating command DCS signature. Following DCS signature, approximately 90 days are required as follows:

45 days "for comment" review
15 days to work comments
30 days for final coordination and using MAJCOM/CC approval.

b. CONSTRAINTS: A major constraint is the Cost and Operational Effectiveness Analysis (COEA). Completion of the ORD depends on completion and approval of the COEA by the operating MAJCOM/CC and CSAF. If a schedule for the ORD has been downward directed, seek schedule relief as soon as the COEA looks like it may impact the schedule for completing the ORD. Inform AF/XOR. AFI 10-601 states that the 180-day suspense can by waived depending on COEA accomplishment, milestones, reviews, and summits, etc. The 180 days is arbitrary and capricious and should be challenged. The driver is getting a quality COEA from which the ORD will be derived.

c. RESOURCES: One action officer (a/o) will be required at the operating command (maybe more than one depending on the size and visibility of the program) to plan, initiate, and conduct the review and approval process. An a/o will be required from each organization receiving the ORD from the operating command for comment and coordination. Functional and project representatives from each directorate of each organization receiving the ORD from the operating command are needed to review, comment, and coordinate.

d. LESSONS LEARNED: The ORD a/o at the operating command normally has his hands full getting the document to the right people and ensuring tasked organizations return comments in a timely manner. The a/o is normally handling several other ORDs simultaneously. The a/o should make a realistic review and approval schedule that considers accomplishment of the COEA and timing of milestones, reviews, and summits. It's important that this process be carefully planned and slack time be built in, if possible, especially for potentially controversial programs.

The Product Center a/o must be responsive to the schedule set by the a/o at the operating command. Work together to establish the schedule and ensure you get comments and coordination

when needed. It is important you understand what is driving completion of the review and challenge arbitrary schedules. Balance the need to accomplish the review by a certain date with the need to accomplish a quality review.

Consider the following when reviewing the ORD: (1) Do the broad objectives and minimum acceptable requirements (thresholds) define system capabilities that will satisfy the need described in the MNS? (2) Are the objectives and thresholds in the APB and TEMP consistent with the ORD (the ORD must be the source of requirements in these documents)? (3) Do the objectives and thresholds leave room for an orderly evolutionary development of the system (trade studies and testing in Phase I will result in thresholds and objectives for more refined capabilities and characteristics). (4) Are the requirements testable? (5) Is the format correct?

With all the coordination and working of comments, there are bound to be obstacles that require extraordinary effort to overcome, such as unforeseen issues, turf battles, and other differences of opinion. This is especially true if the ORD is a Joint ORD.

e. BEST PRACTICES: Ensure all stakeholders are involved in the review and coordination process and are aware of the coordination and approval schedule. The Product Center a/o has stakeholders that shouldn't be left out (i.e., Office of Aerospace Studies, respective Air Logistics Center, XR, YX, related SPOs, functional two-letters. An important stakeholder who didn't get to comment can come back to haunt you.

The operating command a/o should follow up with all reviewers, but especially with those whose comments or coordination are needed the most. The most critical comments will be those made by AF/XOR, AFMC, ATC and AFOTEC. Don't proceed to the next phase without them. The Product Center a/o should also ascertain whose comments are critical. Take a look at whose coordination or approval you'll want or need downstream and get involved with them early and often.

f. TRAPS: The a/o shouldn't assume that all organizations will comment/coordinate promptly. To stay on schedule, the a/o must stay in close contact with the organizations whose coordination or cooperation are needed the most (long poles).

While schedule may be a good motivator for getting the job done, it should not be allowed to inhibit a quality review. This activity should be primarily concerned about getting a quality review. Strike the right balance.

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1. **ELEMENT:** C27, TBS 1.2.4.5.3 (IFC 93-3)

2. **ELEMENT TITLE:** Review Cost Estimate and Update Budget Request [CC# 93-0117]

3. **ELEMENT OWNER:** Operating Command

4. **ELEMENT STAKEHOLDER(S):** SAF/AQ/FMB, AF/XOR, Project Manager

5. **REQUIREMENT:** DoD Directive 7045.14, The Planning, Programming, and Budget System (PPBS), 22 May 84, and Air Force Instruction 10-601, paragraph 1.2.3.

6. **PURPOSE/OBJECTIVE(S):**

a. **Purpose:** The purpose of this activity is to obtain Operating Command approval for the project office estimate of the preferred program alternative.

b. **Objective:** Get the program office cost estimate included into the Air Force budget, submitted for an Air Force Requirements Summit, or approved for use to support other exercises, as appropriate.

7. **DESCRIPTION:** At this point in the project, the Operating Command preferred alternative(s) selection (C25), the preliminary Acquisition Program Baseline (D51), and the Cost Analysis Requirements Description (D52, as required) will have been completed. Based on this, a Project Office Program Cost Estimate (D53) should be generated to document the financial requirements for the preferred program alternative. For a major acquisition program, or any others selected to participate in an Air Force Requirements Summit (B15), the estimate is a required input for the Summit Preparation (B14). Additionally, if there is an Air Force Program Objective Memorandum (POM) exercise planned (B16), the estimate should be updated as required for incorporation into the Operating Command POM submission.

a. There are two activities in this element. First, the project office estimate of the program should be completed and provided to the Operating Command for review and approval. This should be accomplished prior to the use of the estimate for budget submissions or other planning activities. The review should be accomplished to assure that the estimate is representative of the program that will be recommended to address the Command's operational deficiencies. The magnitude and extent of the review could be expected to vary, based on the ACAT level of the program, the magnitude of the program costs, and the general level of interest in the program. The project OPR in the Operating Command should be responsible for coordinating the specific review requirements. If the Operating Command has established a Concept Action Group (CAG) to direct and oversee the project's Phase 0 study activities (C16), the CAG should perform this function, if the CAG has been given the authority to review/approve the project activities. For the purpose of this discussion, it is assumed that a CAG has been established. In the case of projects that have been selected to participate in an Air Force Summit review, the CAG should ensure that any specific Summit requirements, such as estimating excursions, have been performed.

b. Second, when there is an opportunity to get the approved program estimate incorporated into the Operating Command's POM submission to Air Staff (B16), this should be accomplished to get the project funding requirements approved. To achieve this, the CAG should work with the Project Office to ensure that a POM input is developed which meets the current CAG requirements and can be supported in the Operating Command POM review process. (Note: Since a delay may occur between the estimate completion (and approval) and the POM submission, fact of life changes may require the project office to develop and submit program and estimate variations in the POM). When the POM inputs are received from the Product Centers, the CAG should be prepared to address program issues, and support the

project in the review process. Further, a CAG representative should serve as the interface with the Project Office when additional information or analysis excursions are required.

8. ENTRANCE/EXIT CRITERIA:

a. ENTRANCE: The need for the effort described above depends on the anticipated ability to interject the estimated project costs into the Air Force POM (B16), the scheduling of an Air Force Summit (B14), or based on a CAG requirement placed on the Project Office to generate a program estimate(s) to support planning activities.

b. Exit: Approval of the project office estimate by the Operating Command for submission into the Summit review process (B15), or input into the Air Force POM process (B16).

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The primary input for the estimate review are the Project Office Program Cost Estimate (D53). Additionally, the results of the Operating Command preferred alternative(s) selection (C25), and the documentation of the Cost Analysis Requirements Description (D52, if available), should be valuable inputs to the estimate review. The POM inputs would include the MAJCOM specific BPPBS baseline, normally received in the spring of the odd-numbered years, and the POM Preparation Instructions, normally received from AF/PE in the summer.

b. Outputs: An approved project estimate for planning purposes, for Requirements Summit preparation (B14) and execution ((B15), or for inclusion into the Operating Command POM/BES submission to Hq USAF (B16).

10. KEY REFERENCES: The references below provide more specific implementation guidance.

a. AFP 172-4, The Air Force Budget Process, Oct 87 - Describes the Air Force budget process.
b. DoDI 7045.7, Implementation of the Planning, Programming, and Budgeting System (PPBS), 23 May 1984 - Describes the budget process within the Department of Defense.

11. IMPLEMENTATION TOOLS: "The PPBS Primer," 7th Edition, May 1993. This document, is published by the Directorate of Programs and Evaluation, Department of the Air Force, and provides a valuable description of the current BPPBS process. This is one of the few documents that describes the current process, and it does so in detail. Further, it defines the activity schedule for the development of the FY96 POM. However, there is not a great deal of information on POM preparation at the field level.

12. PLANNING GUIDANCE:

a. DURATION: The time required for the CAG review of the estimate can be expected to be related directly to the level of communication between the CAG and the project office, the level of program definition, the approval of previous Project Office estimates, and the quality of the project office estimate and the estimate documentation. If the Project Office efforts have been well coordinated with the CAG, the review may be accomplished with a briefing on the estimate, or providing the analysis documentation to the CAG. However, if issues exist, the CAG review may be performed over the period of weeks, or longer, if the Project Office is tasked to perform further analysis. In the case of the POM, the Operating Command activities begin in the spring with the receipt of the MAJCOM-specific resource baseline and end with the submission of the POM to Hq USAF in August-September.

b. CONSTRAINTS: The Project Office cost estimate will probably need to be performed at a very high level (not detailed) due to lack of program definition. Because of the top level approach, the estimating methods may not always be sensitive to estimating excursions required by the CAG.

Additionally, the constraints inherent in the respective POM resource baseline may limit the Operating Command's ability to support the desired program.

c. RESOURCES: The composition of the CAG can be expected to relate directly to the level of interest in the project, projected costs, and complexity. A sampling of projects indicates that the Operating Command action officer for a project preparing for a milestone review is typically a Major or Lt Colonel. However, the Concept Action Group, per se, is still a relatively new concept, and not widely used.

d. LESSONS LEARNED: It is desirable for the Project Office to formally coordinate with the CAG prior to the start of the estimating activity to ensure that all programmatic and estimating assumptions are fully understood. Further, during the development of the estimate, the Project Manager should remain in close contact with the CAG to ensure that any issues that might impact the analysis are addressed. During the Operating Command POM deliberations and reviews, it is important that the Project Managers keep in close contact with the Project Representative(s). This is important to help resolve issues that may arise, and to ensure that they fully understand all the pertinent aspects of the project and can defend the projected resource requirements.

e. BEST PRACTICES: After submission of the estimate to the CAG, the Project Office should posture itself to respond effectively to programmatic questions and to be able to generate quantitative answers to CAG requests to develop and price out program variations and alternatives. In the case of the POM, this capability to generate quality "what-if" information promptly (often within a few hours) is important, since the reconciliations and rankings that must be performed by the Operating Command must be supported in a timely manner. The exercises may require modifications to the project POM requests based on changes in funding levels, quantities, schedules, or other programmatic aspects. If the Project Office is unable to provide the necessary information, and in time to support the decision makers, the project may not be supported, or approved with insufficient funding levels. Further, if the Project Office is unable to provide a requested estimate, someone with even less information may generate one for the project. If the CAG review is being performed to support Summit preparations, the Project Office must have the same capabilities to perform program analyses, since the project office must be capable of responding to issues that arise during the program reviews.

f. TRAPS: It is imperative that the project office fully understand the requirements of the CAG, especially in terms of content, scope, assumptions, and the deliverable products. In the case of the POM, if the POM input is the first for the project, the submission will be considered a "New Start," and identified as such. There may be additional documentation requirements and a higher level of scrutiny and review for these programs, since there is not an existing funding line. Due to this, the Project Office must be especially prepared to defend project requirements.

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1. ELEMENT: C29, TBS 1.2.3.10 (IFC 93-3)

2. ELEMENT TITLE: Brief COEA Results to OSD(PA&E)

3. ELEMENT OWNER: Using Command

4. ELEMENT STAKEHOLDER(S): Assistant Secretary of Defense (Program Analysis and Evaluation) (ASD(PA&E)), Operating/Using Commands.

5. REQUIREMENT: ASD/PA&E's Draft Cost and Operational Effectiveness Analysis (COEA) Guidelines, Feb 90.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose of this element is to brief Milestone Decision Authority(MDA) on COEA results.

b. Objective: The objective of this element is to ensure MDA staff understands the report before they finalize their assesssment of the COEA's adequacy.

7. DESCRIPTION: When a COEA is forwarded to the Office of the Secretary of Defense (OSD), it is referred to the appropriate Defense Acquisition Board (DAB) committee (A20). Prior to the scheduled milestone review, the ASD(PA&E) prepares a report for the DAB assessing whether the COEA has examined all reasonable alternatives and adequately evaluated their costs, risks, and benefits (A21). This assessment becomes part of the "Blue Book" that is circulated to DAB principals before the milestone review. At least 3 weeks before the DAB meets, the COEA team leader briefs the OSD staff on the COEA's findings. This briefing is similar in style and structure to the cost briefings of OSD's Cost Analysis Improvement Group (CAIG). A senior member of the OASD(PA&E) staff usually chairs the COEA briefings.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance:

(1) COEA report approved by the lead MAJCOM/CC, CSAF and the Air Force cquisition Executive (B15 and B24).

(2) Air Force approved COEA report submitted along with other documentation 45 days before a DAB committee review (A18).

b. Exit: OASD(PA&E) understands and agrees with the COEA report.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

1. Current and complete user operational concept that is consistent with mission deficiency (B15).
2. System threat assessment, and solutions under consideration (B15).
3. Confirm funding, priorities, schedules system baselines, resources and overall direction and management effects are adequate (B15).
4. Establish achievable and affordable performance and support goal and thresholds (B15).
5. Resolve major operational and technical issues (B15).
6. CSAF COEA I and ORD I approval (B15).

b. Outputs: ASD(PA&E) prepares report summarizing the findings, assessing whether all reasonable alternatives have been examined, and whether the costs, benefits, and risks have been adequately addressed. The report should also include a statement on the adequacy of the models and database used in the COEA.

This assessment is included in the DAB Committee Blue Book for consideration by the appropriate DAB Committee Review (A20).

10. KEY REFERENCES:

(a) DoD Directive 5000.4, "OSD Cost Analysis Improvement Group (CAIG)," 24 Nov 92. Explains OSD CAIG's responsibilities, reporting requirements, and membership. Includes explanation of requirements for various acquisition categories.

(b) DoD 5000.2-M, "Defense Acquisition Management Documentation and Reports," Part 8, Feb 91. Provides guidance on preparing and reviewing a COEA. This includes a discussion on the DAB review processes for COEAs.

(c) DoD 5000.2, "Defense Acquisition Management Policies and Procedures," Part 13 23 Feb 91. Provides guidelines for briefings to the OSD CAIG.

(d) AFMCP 173-1, AFMC Cost & Operational Effectiveness Analysis (COEA) Guide, 30 Dec 92. Describes when COEAs are required, how they are used, key elements, organizational structure, and agency responsibilities.

(e) ASD(PA&E)s Draft Cost and Operational Effectiveness Analysis (COEA) Guidelines, Feb 90, chapter 5. Discusses the COEA review process.

(f) AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, Chapter 1 and attachment 5. Provides the procedures and format for preparing and reviewing a COEA.

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: ASD(PA&E)s draft COEA guidelines indicate a COEA findings briefing is similar in style and structure to the cost briefings to the OSD CAIG. A typical OSD CAIG briefing will last 2 hours. DODD 5000.2, Part 13, Section C, provides a rough agenda.

b. CONSTRAINTS: COEA report and findings must be approved by the lead MAJCOM/CC, CSAF, and the Air Force Acquisition Executive before the COEA is submitted as part of the milestone draft documentation.

c. RESOURCES: AFMC as the implementing command will probably be asked to play a big role in the development of the COEA and will probably be asked to help prepare the COEA briefing to OSD(PA&E).

d. LESSONS LEARNED:

(1) If a COEA is to be acceptable and useful, its submission most likely will have been preceded by a long and close working relationship between the service and OSD staffs. The OASD(PA&E) staff typically reviews the terms of reference for a COEA early in the process, not long after Milestone 0 approval.

(2) Staff-level discussions should begin as the COEA is being structured--when assumptions are being considered, alternatives outlined, and measures of effectiveness developed. If the service appoints a Study Advisory Group (SAG), it is beneficial to include OSD representatives on the SAG.

e. BEST PRACTICES:

(1) Get OSD representatives involved early and keep them involved. This should help their review of the final product go smoothly.

(2) Deliver the COEA report on time. OSD's review of COEAs is critical to informed DAB decisions, the delivery and briefing dates are important. In most cases, the DAB will delay its review if a COEA in not submitted on time.

f. TRAPS: The (POE)/Component Cost Analysis (CCA) may be revised up to the last minute prior to the CAIG reviews. It is important that the analysis chief keep all affected teams appraised of changes or problems and that comprehensive explanations of estimate differences be provided to the CAIGs. The POE, CCA and Service Cost Position (SCP) estimates and the groundrules and assumptions used should be consistent with the COEA estimate.

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1. **ELEMENT:** D3, TBS 0.1.3.0 IFC 93-3

2. **ELEMENT TITLE:** Establish Industry Link(s)(As Required)

3. **ELEMENT OWNER(S):** Operating MAJCOM

4. **ELEMENT STAKEHOLDER(S):** Product Centers, Laboratories, and Industry

5. **REQUIREMENT:** Department of Defense Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 5, Section A, paragraph 3c; Section E; Part 10, Section C, paragraph 2e. Early industry involvement in the acquisition effort shall be encouraged to take advantage of industry expertise to improve the acquisition strategy.

6. **PURPOSE/OBJECTIVES:** The purpose of establishing an early link with industry is to obtain the latest technological information in support of Air Force deficiencies. Participation in early study or mission needs efforts will allow industry visibility into potential requests for acquisition support. The objectives for this block are as follows: (a) to establish an open communications link between the Air Force and potential defense contractors , (b) to provide the latest requirements information to potential defense contractors, and (c) to obtain information from Defense Contractors on the latest technological developments.

7. **DESCRIPTION:**

a. This particular block is not directed by a regulation. It is an activity that must be ongoing throughout the whole Program Development Process. This activity pertains to contacts and/or formal contractual arrangements with our customers/partners in industry who are considered an integral part of the process. It is a matter of good business practices and the establishment of effective ongoing communications. In the predecessor Block C4 (Review Mission and Area Plans), it is important that industry be brought in early to help establish the initial link between potential suppliers and the users. This may save a lot confusion downstream. This block ties into successor block D29 (Industry Monitor and/or Participate in Government Programs through IR&D, RFIs, RFPs, and/or Other Means). D29 summarizes all of the predecessor blocks which tie into it.

b. Obtaining early industry involvement is vital to the long term success of the acquisition. Early, open, and effective communications may result in efficiently tailored and documented requirements, better focused technology development, as well as fewer adversarial relationships. The operating MAJCOM and Project Manager should decide the level of industry involvement needed and coordinate their thinking with the Procuring Contracting Officer (PCO). Information concerning the acquisition should be provided to all interested potential offerors so that no company receives an unfair competitive advantage.

c. The operating MAJCOM is the responsible authority in establishing industry links. They will be responsible in providing funding, if applicable, to support this effort. In most cases, the operating MAJCOM should depend upon the acquisition expertise available within AFMC to actually initiate this effort.

d. In previous years, because of the generally adversarial relationship between government and industry, acquisition strategies and documents were developed and prepared solely by government personnel. They were based almost exclusively on information generated either within the Government or through Requests for Information to industry. Industry participation was thus limited, and participants were often left in the dark wondering what happened to their comments.

e. The lack of effective communication in the past created misunderstandings and frequently caused companies to waste resources on inappropriate design or development activities. To establish government/industry relationships, the following communication methods can be used throughout the

early industry involvement process. Methods selected will be dependent on specific objectives for each given effort. Not all options are appropriate in every case.

1. Establish a Technical Library. This is a central location where key releasable documents are made available for potential offeror's review. The Project Manager authorizes the use of a program technical library and determines which information and at what stage of development will be provided in the library. The PCO or Project Manager oversees the operation of the library, publicizes its existence, receives, evaluates, and disposes of all questions or comments generated. Once established, the location must be publicized by a notice in the Commerce Business Daily. Every effort should be made to ensure that all potential offerors have equal and open access to the information contained in the library.

2. Conduct a Pre solicitation Conference with Industry. This is an excellent method of conveying information, enhancing understanding of the requirement, reducing adversarial relationships and building a sense of ownership in the program from both the Government and industry standpoint. Industry conferences must be published in the Commerce Business Daily to facilitate wide industry participation.

3. Establish or Make Wider Use of an Electronic Bulletin Board. This is a database that can be accessed by industry utilizing standard modems over common carrier telephone lines. The project manager authorizes the use of these bulletins boards for program specific information and identifies candidate documents or information for inclusion. Depending on phase of competition, the Competition Advocate's office may need to be involved to foster increased responsiveness and competition.

4. Utilize the Ombudsman Program. Each product center has established an ombudsman to serve as a channel for industry comments on a non attribution basis. The ombudsman should be identified in each of the above methods of communication.

5. Establish Communication Link. Hold periodic meetings weekly, monthly, or as required with local representatives of the companies with an interest in the project activities. These provide an organized forum for passing information and assure that each company involved has the opportunity to receive the same information.

6. Visits to Industry. If practical, make one or two visits per year to each company to discuss project activities and share information. This activity will be highly dependent on the number of offerors and the availability of government travel funds. These visits allow the company an opportunity for a relatively large audience, compared to the number that would travel to the government location, to listen to the most current information updates and ask questions.

7. Issue a Request For Information (RFI) Announcement in the Commerce Business Daily. When information necessary from potential sources cannot be obtained by more economical and less formal means, the Contracting Officer, with approval from a level above the CO, may issue an RFI. This type of announcement provides a broad statement of need, briefly describes the Government's intentions regarding program/acquisition approach, and identifies key events. In addition, the announcement requests industry comments on how the Government can satisfy its needs, alternative approaches, technology availability and risk, the identification of cost, drivers, and suggestions on ways to enhance or sustain competition. The request shall cite the provision at FAR 52.215-3, "Solicitation for Information and Planning Purposes." All respondents to this notice shall be included on the Source List, unless specifically declined by the firm. As stated above, the government should not just automatically issue an RFI. Some companies spent millions of dollars responding depending on the subject. Many companies will feel obligated to respond just to stay competitive. It is an option but could be costly to industry. For more information regarding RFI, reference Air Force System Command Request for Proposal Process Guide, Module 2.2.

f. Building a partnership with industry is critical, since they are an additional source of expertise to ensure the correct definition of the deficiency (unfulfilled mission need) and the best approaches to resolving it. Once a deficiency has been identified, it behooves the government to have industry aware

of the deficiency and establish a link for potential business. During the Preconcept Phase, the key to additional pursuits with industry is predicated upon available funding. If funds are available, industry may be requested to provide studies with regard to the deficiencies. The availability of funding at this stage could cause serious limitations to a program. The degree of their participation is, of course, limited by the rules of information releasability, the Competition in Contracting Act, and good business practices. While industry participation is encouraged, the Government must treat all potential offerors fairly and ensure that no offeror is afforded a competitive advantage as a result of government actions. The following are contractual ways to obtain additional information from industry:

1. Task order contract. Laboratory and development planning support may be obtained by use of contracts utilizing task ordering arrangements. Task ordering arrangements are appropriate for those instances in which a defined need exists for contractual support of the scientific and technical mission, the precise nature, quantity or schedule of the effort requirement cannot be precisely determined in advance, but for which the description/specifications/work statement can be defined in general terms. Contract requirements and specifications shall be written as definitively as possible from the onset, but not tailored to any particular approach. For more detail regarding task order arrangements, reference PMR Management Instruction 70-75. Being able to add to an ongoing task order contractual arrangement is probably the most expeditious means in getting a study generated and should only take 1 to 2 months from identification of a deficiency to generating a study request.

2. Request for Proposal (RFP). If an existing task order contract is not available, then a RFP may be required and is announced in the Commerce Business Daily. The Commerce Business Daily is industry's link with the government for upcoming activities. The formal RFP system will apply (reference D64, Prepare Request for Proposal). During the pre-Concept phase, a new RFP may not be the usual means to initiate the procurement of study efforts if the project office can locate an existing task order contract. The RFP is a vehicle available to the operating MAJCOM if a funding source is available.

3. Broad Agency Announcement (BAA) BAA(s) are a method of soliciting and contracting for R & D efforts which are considered areas of interest that are broad in scope and more topical in nature. The synopsis in the Commerce Business Daily serves as the RFP and sets forth the areas of exploration (statement of work) and the award criteria. The BAA may be used by agencies to fulfill their requirements for scientific study and experimentation directed toward advancing the state of the art or increasing knowledge or understanding rather than focusing on a specific system or hardware solution. This technique shall only be used when meaningful proposals with varying technical/scientific approaches can be reasonably anticipated. The availability of the BAA shall be published in the Commerce Business Daily and may be published in noted scientific, technical, or engineering periodicals. Proposals received as a result of the broad agency announcement shall be evaluated in accordance with evaluation criteria specified through a peer or scientific review process (project engineer or program manager). The primary basis for selecting proposals for acceptance shall be technical soundness, importance to agency programs, and fund availability. Cost realism and reasonableness shall also be considered to the extent appropriate. For more information regarding broad agency announcement reference AFMCFARS 5335.016.

4. Program Research and Development Announcements (PRDA). The PRDA is an announcement in the Commerce Business Daily of a requiring activity's interest in new and creative research or development solutions to scientific or engineering problems, with the intent to solicit proposals. This announcement may appropriate for exploratory research that has general application and is not system specific, i.e., not related to the development of a specific weapon system or a specific hardware development effort. Program research and development announcements are used when use of a conventional statement of work could result in unintentional stifling of new and creative solutions through any of the research and development approaches. This announcement maximizes competition in the same manner as broad agency announcement. For additional information, reference AFMCFARS 5335.90.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Determination of a potential or establishment of a formal government effort to investigate a mission area for potential deficiencies.

b. Exit: Efforts continue until project or study effort is terminated.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Mission Area Assessment (MAA) (C1).
(2) Mission Need Analysis (MNA) (C3).
(3) Defense Planning Guide (National Defense Planning, A1).
(4) Air Force Defense Planning (B-1).

The above inputs are needed to establish the requirements for the project.

b. Outputs: Meetings, bulletin board, links, visits, Requests for Information, contracting vehicles (i.e., task order, Request for Proposal, Broad Agency Announcement or Program Research and Development Announcement), and etc.

10. KEY REFERENCES:

a. Department of Defense Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 5, Section A, paragraph 3c; Section E; Part 10, Section C, paragraph 2e.
b. ASAF(a) Acquisition Policy Letter 91M-001, dated 20 Jun. 91.
c. AFMCFARS 5315.405-90(d)(2), Pre-Draft RFP Activities.
d. FAR 6.102(D)(2)Broad Agency Announcement (BAA).
e. DFARS 235.016, Broad Agency Announcement (BAA).
f. AFMCFARS 5335.016, Broad Agency Announcement (BAA).
g. AFMCFARS 5335.90, Program Research and Development Announcements (PRDA).
h. PMR Management Instruction 70-75, Task Order Arrangements, 24 Nov 89.
i. Dept. of the Air Force Ltr, Acquisition Policy 91M-001, 20 Jun 91.

11. IMPLEMENTATION TOOLS:

a. AFSC Request for Proposal Process Guide, Jan 92

b. Electronic Bulletin Boards - electronic capabilities accessible by industry over common telephone lines, modem, and IBM compatible computer can be used to index library information, upload essential documents or provide information in an expeditious manner. AFMC has established such a link called Helpful Information for Industry (HIFI) which identifies current and planned acquisition activities. In addition, the F-22 and B-2 Systems Program Offices have established bulletin board links. ASC/CYX also has a bulletin board for all ASC RFP and Source Selection teams to use.

c. Standardize Document 5, Market Analysis for Non-Developmental Items, - this describes ways to accomplish a market survey. It is designed to avoid distinguishing between a commercial or a military application. Contact the Office of the Assistant Secretary of Defense (Production and Logistics).

d. Information Analysis Centers (IACs) - Catalogs which identify study and analysis activities conducted by contractors covering a wide range of technical subjects. May assist the project manager in the identification of potential sources. Contact WL/FIVS/SURVIAC.

12. PLANNING GUIDANCE:

a. DURATION: The duration to initiate an industry link is dependent upon user's schedules, funding, and the contracting action taken to implement industrial studies. If a task order contract already exists, the effort can take from 1 to 2 months to place on contract. If a formal Request for Proposal is required, the effort can take 3 to 9 months depending upon the number of draft Request for Proposal iterations. Once initiated, duration may continue for years until project terminates.

b. CONSTRAINTS: Availability of adequate funding, time and schedules. Security restrictions would also have to be considered if an effort is involved with classified or special access information.

c. RESOURCES: Procuring Contracting Officer (1), Contract Negotiator (1), Project Engineer (1), Financial Manager (1), and Project Management (1).

d. LESSONS LEARNED: Future program success is dependent on good government/industry team work; poor coordination could easily lead to lack of understanding, schedule slips, and cost overruns.

e. BEST PRACTICES: A blanket Notice of Contract Action is published semiannually to provide earliest possible notice to industry of planned acquisitions. By identifying all planned activity for a 6-month period, industry is provided the opportunity to form teaming arrangements or to improve business decisions in the use of limited resources. In the early inception of a program, hold monthly brown bag lunches with prospective contractors to get their early inputs into the program. Also, it may be beneficial to have a meeting after issuance of an RFI, where all respondents can come to ask questions.

f. TRAPS: Limiting participation to only large contractors and not reviewing all potential offerors available. Even though new technological advancements are usually found in large Research and Development organizations, the government should make all efforts not to exclude anyone. All offerors need to be given an equal opportunity. Care must be taken to ensure that no company is given an unfair advantage (e.g., receiving information that is not available to all companies). If this were to happen, a protest could delay the program for many months. When using noncontractual type vehicles, caution must be used to ensure that if there is a need to make the information and commitments of a contractor or offeror binding, the commitments must be reflected in a resultant contract.

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1. **ELEMENT:** D4, TBS 0.1.7.1 (IFC 93-3)

2. **ELEMENT TITLE:** Conduct Deficiency Analyses Support (As Required)

3. **ELEMENT OWNER(S):** Operating Command, Product Center XRs

4. **ELEMENT STAKEHOLDER(S):** Air Force Materiel Command (AFMC), Aeronautical Systems Center (ASC), Air Force Acquisition Model (AFAM) office, Product Center XRs, ASC/YX, Industry, Laboratories.

5. **REQUIREMENT:**

a. Air Force Policy Directive 10-6, 19 Jan 93; Air Force Instruction (AFI) 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Jan 93, Pages 2-3.

b. DoDI 5000.2, Defense Acquisition Directive, Part 4, Section B.

6. **PURPOSE/OBJECTIVE(S):**

a. Purpose: The product center XRs are the principle sources of support to the operating commands for conducting deficiency analyses. The purpose of this element is to describe that support function and explore the details of the campaign level analyses conducted in support of the operational command.

b. Objectives: The objectives of this activity are the same as described in C6 and include providing a campaign level analysis of the defined forces, evaluating their ability to accomplish theater objectives, and identifying any deficiencies that are found. This activity is conducted in response to a request for support from the operational command (C6).

7. **DESCRIPTION:**

a. The Mission Needs Analysis (MNA) process addresses the missions and tasks which have been identified during the Mission Area Analysis (MAA). The focus of the MNA is on assessing the capabilities of current and programmed forces to conduct operations achieve the goals (missions and tasks) and consequently overcome the identified threat (B2) (established in the regional scenarios defined in the MAA, C1) and identify operational shortfalls and needs. The deficiency analysis employs a task-to-need evaluation process to identify operational shortfalls (deficiencies) in the current and programmed forces and force structures. Campaign analyses are the principle tool used to accomplish these task-to-need assessments.

b. In order to accomplish deficiency analyses, quantitative information on force structures, force locations, force element capabilities, concepts of operations, geography, environment and target, must be developed for both sides in the conflict. Warning time, deployment decision time, and start of conflict information for other services and allied forces must also be defined. The critical parameters identified as a part of the deficiency analyses are Measures of Merit (MOMs), Measures of Performance (MOPs) and Measures of Effectiveness (MOEs) that allow conclusions to be drawn regarding the success of campaigns.

c. Deficiency analyses are conducted at the campaign level using models that simulate and quantify predetermined critical parameters of mock engagements. These modeled engagements reflect the DPG/AFPG strategies and MAA identified missions, tasks and force interactions in theater. Performance (our ability to achieve identified tasks and accomplish required missions) is predicated on an evaluation of the simulation results against the predetermined metrics. Failure to meet operational objectives (missions/tasks) is an indication of potential deficiencies (operational shortfalls). These metrics establish whether deficiencies in force structure or operations may exist. The results of

deficiency analyses are provided at a very high level, (i.e. whether or not the total forces can accomplish the tasks). The emphasis is on identifying deficiencies, not solutions. As required, follow-on analyses will be conducted as a part of C7 and D7, to establish whether nonmateriel characteristics of the campaigns can be altered to achieve the desired outcomes (accomplish the tasks). This activity provides source data for accomplishing follow-on alternative materiel solutions analyses.

8. ENTRANCE/EXIT CRITERIA: This activity begins when the operating command requests support to evaluate US ability to accomplish defined missions and tasks. It is complete when the operational shortfalls are assessed to the satisfaction of the operating command.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Concept of Operations (C2).
(2) Mission definition (tasks) and force projections (C1).
(3) Threat information (B2).

b. Outputs: The results of campaign analyses are documented in an Operational Shortfalls (Deficiencies) Report and provided to the Operating Command (C6). and source data are provided to support activities in D7. Outputs include:

(1) Description of scenarios.
(2) Assumptions and constraints.
(3) Potential Deficiencies.

10. KEY REFERENCES: Air Force Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures, dated 16 Feb 93.

11. IMPLEMENTATION TOOLS: The campaign level deficiency analyses are performed using models that describe the interaction of forces at the campaign level, comparing the quantified parameters (identified in Para. 7, above) with predetermined measures of merit for mock engagements. The results indicate potential deficiencies, not solutions.

12. PLANNING GUIDANCE: Prior to proceeding into the deficiency analyses, the supporting analysts, designers and logisticians must be provided an opportunity to become familiar with the output of the MAA (if they did not support that activity) and adapt analytical tools to operational concepts, force structures, and campaign scenarios. The strategic information documented in the DPG and the tasks identified in the specific mission area must be made available to the performing activity to ensure that a thorough evaluation is conducted and proper constraints and assumptions are applied.

a. DURATION: It typically takes a minimum of 6 months to conduct a campaign level deficiency analysis. For complex study efforts (missions and tasks involving the interaction of multiple systems) the deficiency analysis may take a year or more.

b. CONSTRAINTS: The scenarios should conform to the Defense Planning Guidance (DPG), addressing all assumptions made regarding the threat and US and allied involvement (mix). All relevant situations in the DPG scenarios should be addressed in the analysis. US force availability should be consistent with any deployment or reinforcement objectives included in the scenarios and established in the DPG.

c. RESOURCES: Resource allocation is left as an issue for the specific acquisition activity. Typically, the team assigned to conduct a campaign level deficiency analysis would include functions covering mission analysis, design engineering (including software), logistics (supportability,

deployability, maintainability, operability), cost, contracting and management. Data produced in the course of conducting the deficiency analyses is used across all functions to support ongoing sensitivity and effectiveness analyses.

d. LESSONS LEARNED: The Air Force Lessons Learned Program should be consulted for current lessons learned regarding conducting campaign level deficiency analyses.

e. BEST PRACTICES: It is essential that the operating command participate in this effort to verify that the concepts of operations are realistic and that any identified deficiencies are described adequately to support follow-on evaluation of nonmateriel solutions (C7 and D7).

f. TRAPS: The results of any campaign simulation are very dependent upon assumptions regarding the way the forces are allocated in accordance with the initial strategy and the response to the situation as it evolves. All assumptions made in support of performing the campaign level deficiency analyses must be clearly identified and sensitivity analyses on their impact on the results must be conducted.

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1. **ELEMENT:** D05, TBS 0.1.8.0 (IFC 93-3)

2. **ELEMENT TITLE:** Assess Technology Areas

3. **ELEMENT OWNER(S):** Technical Planning Integrated Product Teams (TPIPTs), ASC/XR

4. **ELEMENT STAKEHOLDER(S):**

a. Operating commands
b. Implementing commands
c. ASC/XR
d. ASC/YX
e. System program offices
i. Wright Laboratory (WL)
j. Armstrong Laboratory
k. Other USAF, U.S. Military , and DOD laboratories
l. Product center development planning organizations and program offices
m. Logistics centers.

5. **REQUIREMENT:** DODI 5000.2, Defense Acquisition Management Policies and Procedures, 23 February 1991

a. Part 5, Acquisition Strategy, Section D, Technology Transition and Prototyping. This requirement directs that the acquisition strategy for defense acquisition programs identify plans, activities, and criteria for assessing and transitioning critical technologies from technology development and demonstration programs. Section D establishes the policies and procedures to be followed to accomplish this requirement.

b. Part 6, Engineering and Manufacturing, Section A, Systems Engineering. This requirement establishes the systems engineering policies and procedures to be followed for technology transition efforts.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: Identifiy and evaluate technologies that are under development at U.S. Government laboratories and in industry.

b. Objectives:

(1) Identify technologies with potential application to meeting requirements of user mission area plans (C4).

(2) Perform preliminary evaluation of relevance and utility of technology programs.

(3) Enhance user understanding and support of emerging technologies and concepts.

(4) Improve the quality and relevance of technology development to user requirements by influencing science and technology investments within DoD (D30) and in industry (D29).

7. DESCRIPTION:

a. What is Technology Area Assessment?

(1) Technology Area Assessment is the process of preliminary identification and evaluation of technology development programs having potential application to the subject mission area. Technology development programs can include those being performed by USAF and other U.S. Government laboratories (Block D30) and by industry (Block D29).

(2) Although Technology Area Assessment is identified as an early step in the Pre-Milestone 0 phase of weapon system acquisition, it is actually an on-going process as long as weapon system development and upgrade actions continue.

b. Who does Technology Assessment?

Technology assessment has typically been accomplished by several different organizations, often resulting in duplication of effort. Organizations performing technology assessments include the operating commands, product center development planning (XR) organizations, system program offices (including ASC/YX), etc. Technology assessment is also one of several activities of product center chartered Technical Planning Integrated Products Teams (TPIPTs). TPIPT membership includes representatives of all the stakeholders involved in technology-related planning for specific mission or functional areas. As Integrated Weapon Systems Management matures in USAF weapons system acquistion, TPIPTs should become the single technology assessment focal point. (Additional information on the TPIPT process can be found in C4 and D18. Also, contact ASC/XRS and HQ AFMC/XRX for current guidance on the TPIPT process.)

c. How are technology programs identified?

(1) Identifying appropriate technology programs can be a function of the reviewer's personal awareness of technical developments in his own area of expertise. For example, personal awareness can result from working relationships with laboratory personnel and/or regular reading of technical periodicals, professional journals, etc., This is a very useful approach but is inherently limited in scope. Being aware of technology development with application to your project or program, you can pursue obtaining detailed information through personal contacts or through one or more of the means described in the paragraphs below.

(2) Contact your product center development planning organization (XR) to determine if a TPIPT exists for the mission or functional area of concern. The TPIPT chairman or an XR representative should be aware of a broad scope of applicable technology development programs underway or planned.

(3) U.S. Government Laboratory Programs

(a) Information on laboratory development programs can be obtained by reviewing technical program plans published by U.S. Government laboratories. For example, Wright Laboratories (WL) publishes Technical Area Plans (TAPs) which identify specific technology program thrusts and associated technology developments in USAF or Joint Service Programs. Included in the TAPs is a description of how the technologies are related to each other, changes from the previous year, major accomplishments, expected time to maturity, and technology transition plans. WL TAPs can be obtained from WL/XPT or Defense Technical Information Center (DTIC). Technical program plans should be available from all U.S. Government laboratories either directly or through DTIC.

(b) More specific technology program information may be obtained by attending laboratory program review presentations or by reviewing lab program review reports. For example, Wright Laboratory conducts an annual Spring Program Review during which individual technology

development programs are described in a series of detailed briefings. WL also publishes an accompanying report which contains the presentation briefing charts. The WL Spring Program Review report can be obtained from WL/DOX. Contact other laboratory program planning offices for availability of program reviews and/or reports.

(4) SPO-sponsored technology development. Product center system program offices (SPO) can directly fund laboratories and/or industry to develop technology for specific application to the SPO product. It could be worthwhile to contact SPOs with similar missions to develop weapon systems and supporting technology. For instance, technology being developed for the B-2 or F-22 could have application to a next generation multi-role fighter. With shrinking budgets for military development programs, development of common technologies is already taking place, so information should be eagerly shared between program offices. (Note: Technology information sharing for ~~highly~~ classified efforts such as signature reduction may be more difficult to obtain.) When seeking information from other SPOs, contact the engineering or program management directorates of those organizations.

(5) Other Service programs. Technology sharing between development programs of other services is also becoming more common. For example, common avionics modules could be developed for application to the USAF F-22 air superiority fighter, U.S. Army LHX helicopter, and the Navy/Marine F/A-18E/F. U.S. Navy/Marine Corps and Army technology development may have direct application to ~~your~~ USAF programs. Use your personal contacts or contacts in the laboratories and product center and operating command development planning (XR) organizations to help you find contacts in service programs you need information from.

(6) Literature Searches. A great deal of technical information from U.S. and foreign sources is available as published literature in the form of technical reports, professional journals, periodicals, books, etc. Using key words or phrases associated with the technology or mission area of interest, computer database literature searchs can be performed to identify available published information. One such database is maintained by the Defense Technical Information Center (DTIC). Literature search services are available to assist you with consulting DTIC and other information databases. Contact the Wright Laboratory Technical Library at Wright Patterson AFB (DSN 785-7454) for information and assistance.

(7) Industry IR&D. Commercial industry also funds and performs technology development programs in order to maintain competitive advantage. Corporations often seek U.S. Government participation (primarily funding) of these efforts . If a corporation believes a technology development may be applicable to a potential government program, it can submit information describing the effort along with a request for funds. Known as Independent Research and Development (IR&D), these efforts benefit both industry and the government. Although the company retains proprietary rights to the technology, the government benefits through awareness and the ability to use the information for advanced planning. IR&D program briefings are presented annually to various DoD organizations including reports which are distributed for review. Government reviewers grade the projects for relevance, utility, and approach and make recommendations on government support. IR&D report details include the scope of the program, technical approach, intended applications, schedule, cost, and principle personnel involved in managing and conducting the programs. Attending the briefings allows direct interaction with industry people involved with the projects. Companies may be willing to provide additional briefings to specific program offices who are particularly interested in their program. (Contact the Wright Laboratory Plans and Programs Directorate, WL/XP, for information on IR&D projects that may apply to your program.)

(8) Foreign Aerospace Science and Technology Center (FASTC). Obviously, not all technology applicable to USAF weapon system integration is developed in the United States. However, information on foreign technology is often difficult or impossible to obtain through routine channels. The Foreign Aerospace Science and Technology Center (FASTC) at Wright Patterson AFB (formerly known as Foreign Technology Division or FTD) often obtains and analyzes information on science and technology associated with foreign weapon systems. Contact FASTC Information Research Services (FASTC/DXLR), DSN 787-2248 for further assistance.

(9) Attend Technical Conferences, Conventions, and Symposiums. Examples include the National Aerospace Electronics Convention (NAECON) held annually in Dayton, Ohio; SAE Aerospace conferences held annually, Symposium on Aviation Psychology held bi-annually at Ohio State University in Columbus, Ohio, etc.

d. How is technology assessment accomplished?

(1) Identify technology development programs that have application to the mission or functional area of the project.

(2) Obtain detailed information on the technology programs from the appropriate sources as described above.

(3) Have people in your project/program with appropriate expertise review the information to determine if the technology is relevant and useful to meeting projected technical requirements. The TPIPTs are a potentially useful source for this type of activity.

(4) Ensure that operating command requirements people are kept informed on the details, schedules, and cost of applicable technology programs.

(5) Maintain awareness or contact with applicable technology programs.

(6) Project/program offices should actively support technology development programs that are applicable and of interest. This support can include, but is not limited to, the following:

(a) Recommend operating command support of both laboratory and industry technology programs.

(b) Recommend U.S. Government funding of industry IR&D.

(c) Provide direct funding, if available, of appropriate technology development programs.

(d) Continue involvement with the relevance, scope, technical approach, schedule, funding, and priority of technology development programs assessed as critical to your mission or functional area through the following program development process activities:

(1) Establish Industry Links (D3)
(2) Determine Applicability of NDI (D13 and D27)
(3) Identify Cooperative Development Opportunities (D14 and D28)
(4) Prepare Technology Guidance (D18)
(5) Assess Technology Needs (D43)
(6) Develop and Update Technical Plans(D20B and D23)
(7) Conduct Concept Definition for Preferred Alternatives (D37B)
(8) Prepare RFP (D64)
(9) Release RFP (D69)
(10) Establish System Program Office (D76)
(11) Award and Issue Contracts (D74)

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Technology Area Assessment should begin during Mission Area Planning (Review Mission Area Plans, Block C4). Although technology assessment is an on-going process, it can be broken down into annual segments due to the annual nature of laboratory and IR&D reviews.

(Note: Technology Area Assessment for this phase of a program should begin as a preliminary look at technology with potential application to the subject mission area. However, technology assessment should continue in some form, and at various levels of detail, throughout the life of a weapon system acquisition program.)

b. Exit: When applicable technology programs have been identified and evaluated with respect to potential efforts.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The following inputs are required to accomplish Technology Area Assessment. The inputs are required because they provide information on a broad scope of technology development programs and they are easily obtained.

(1) Technology Program Reviews (WL/XP).

(2) Technology Plans for Wright Laboratory (WL/XPR).

(3) Technology Area Plans (WL/XPT)

(4) IR&D Annual Program Reviews (WL/XPR)

(5) IR&D Annual Plans and Reports (WL/XPR)

(6) Literature Searches (WL/DOC). The Wright Laboratory Technical Library would be the primary facilitator for accomplishing literature searches. WL-assisted literature searches will allow you to search the DTIC and other information databases through which you should be able to find information on technology development programs of DoD laboratories other than WL.

(7) Review of Mission Area Plans (C4).

b. Outputs: The following outputs are required from the Technology Area Assessment process. The outputs are required in order to provide formal documentation of the technology programs that were evaluated.

(1) Technology Investment Recommendation Reports (TIRR) developed by TPIPTS and provided to mission area planners (C4) and laboratories (D30).

(2) Mission Area Development Plans developed by TPIPTS or XR organizations and provided to mission area planners (C4).

(3) IR&D evaluations to industry (D29).

(4) Briefings to mission area planners (C4), laboratories (D30), industry (D29), etc.

10. KEY REFERENCES: See requirements (paragraph 5, "Requirement," above).

11. IMPLEMENTATION TOOLS:

a. See "How Are Technology Programs Identified?" (paragraph 7.c, above).
b. *Technical Library Data Bases such as the Defense Technical Information Center* (DTIC).
c. Technology Program Reviews, from WL/XP, other Service, DOD, and National Laboratories
d. Technology Investment Plans for Wright Laboratory from WL/XPR,and other Service, DOD, and National Laboratories
e. Technology Area Plans from WL/XPT
f. Professional Journals, technical periodicals, conventions/conferences and their proceedings.

g. See requirements (paragraph 5, "Requirement," above).

12. PLANNING GUIDANCE:

a. DURATION: As previously stated, technology assessment should be an ongoing activity throughout the life of a program. However, the duration of Technology Area Assessment in support of Mission Area Planning (C4) can be broken into quantifiable elements. Based upon the following descriptions of the elements of technology assessment, you will have to develop your own estimate of how long Technology Area Assessment activities may take considering the scope of your program and the quantity of technology development programs to be reviewed.

(1) Information Gathering. Identifying appropriate technology developement programs and gathering information from the sources described above will usually occur in multiple segments over a calendar period ranging from several months to a year, depending upon the timing relationship between the start of your program's technology assessment effort and the schedule of planned technology program reviews. Individual information gathering activities can range in duration from a few hours or a day or two, up to 1-2 weeks. Following are some examples of some of the more well defined information gathering activities you may participate in.

(a) Laboratory and IR&D program reviews are generally annual activities. Laboratory reviews, such as the Wright Laboratory Spring Review, are usually planned to occur on during the same calendar period each year. Industry IR&D reviews are planned in a similar manner. Contact the Wright Laboratory Plans and Programs Directorate (WL/XP, DSN785-2532) for scheduling information for the Spring Review and IR&D reviews. The 1993 WL Spring Review was held during the first week of May and lasted five days. IR&D reviews may be spread over a period of weeks, but held during the same calendar period each year. Of course, the plans and reports associated with these reviews can be obtained at any time for review and evaluation. Labs and contractors may also provide presentations specifically for your program if requested.

(b) Literature searches may be scheduled at your convenience. Because it sometimes takes awhile for the library staff to get to your request, gain access to databases, or get computer time, literature searches can range in duration from an hour or so to several days. You will need to be present at the beginning of the literature search to provide key words, phrases, and subject areas and to help the library staff understand exactly what you're looking for. However, since it may take a period of hours or days to actually do the search, you may not have to be present during the whole time. The library will call you back to let you know your search information is available for pickup. You can also still do your own literature search the old way by using library card/computer catalogs. Obtaining applicable documentation discovered in the literature search may take a period of days or weeks depending upon the source.

(2) Evaluation. Information should be reviewed and evaluated shortly after it is obtained while details are fresh in the minds of those involved. Evaluations can be done in various group settings (such as TPIPT meetings), by individuals, or a combination of methods. Reviews by individuals can range in duration from a few hours to several days depending upon the quantity of information to be reviewed. Group reviews such as a TPIPT meetings can range from a day to several days. An example of an actual Technology Area Assessment was performed in support of the USAF Multirole Forces Project (MRFP) by the Program Development SPO Engineering Division (ASC/YXE) in June 1993. Out of the 200 or so technology development programs presented at the WL Spring Review, approximately 70 were identified were identified as being applicable to the MRFP. Each of the 70 programs were evaluated and scored by individual engineers. Composite scores were compiled for each program and discussed by a group of senior engineers who established the final scores. This effort lasted a total of approximately three weeks. Individual time spent ranged from 1-2 hours to 2-3 days.with the over a period of approximately

(3) Reporting. Once information is gathered and evaluated, appropriate assessment reports must be prepared and submitted to the mission area planners (C4). Various reporting formats

are described in paragraph 9.b, above. Preparation of individual reports or briefings can range in duration from several days to weeks depending upon the scope and quanitity of information covered. Formal coordination of reports and approval of briefings can add more days or weeks to the reporting cycle. The results of the MRFP review described above were presented in briefing form to Air Combat Command. This particular presentation required approximately 2-4 days to prepare.

b. CONSTRAINTS:

(1) Maintaining awareness of a broad scope of technology development efforts across government and industry, nationally and internationally, can be very time consuming.

(2) In addition to being time consuming, obtaining complete information on technology development efforts from all DoD laboratories, other services, industry, and foreign sources can still be difficult. Information on "black world" program technology(s) development is not available within the general laboratory community.

c. RESOURCES:

(1) A particular TPIPT may consist of 10-20 members representing a broad scope of applicable technical and/or operational exertise and supplemented with technical experts. Technical representation should cover the fields of engineering (airframe , avionics, propulsion, electrical, human factors/crew systems, manufacturing, support equipment/diagnostics, etc.) and logistics (acquisition logistics and logistics support). Operational representation should include expertise in operations, maintenance, and support of weapons systems in the same mission area. Approximately 10-15 engineers involved in the June 1993 ASC/YXE MRFP technology assessment attended the WL Spring Review. Approximately 20-30 engineers from YXE, other SPOs, and ASC/EN functional organizations participated in the evaluation of the lab programs.

(2) Financial resources to fund travel for TPIPT members to attend program reviews, conferences, conventions, etc., visit contractors, and to purchase conference proceedings, subscriptions to technical journals and periodicals, etc.

d. LESSONS LEARNED:

(1) Specific attention must be given to the coordination of Technology Area Assessment activities. Due to the number of organizations (as described in paragraph 7.b, above) who can do technology assessments, coordination efforts should be focused on avoiding duplication of effort and conflicting assessments caused by lack of coordination. The TPIPT process seems to offer the best method for facilitating coordination and eliminating duplication of effort.

(2) Because the TPIPT process is still in the formation stages and TPIPTs are in the formation stages, there currently are no lessons learned available .

e. BEST PRACTICES:

(1) WL/XP is currently in the process of putting guidance together on how to perform technology assessment. This process may be useful when completed.

(2) HQ AFMC/XRX is working in coordination with Air Combat Command, HQ ACC, to develop command guidance on the TPIPT process. Contact HQ AFMC/XRX, DSN 787-7119 for additional information.

f. TRAPS:

(1) Failure to use the TPIPT process which involves all the proper stakeholders in a coordinated effort will likely result in duplication of effort and conflicting assessments of the same technology development programs

(2) Technology development is like life, it goes on. You can continue to search for and evaluate technology developments forever. Therefore, the scope of Technology Area Assessment activities should be clearly defined and reasonable time constraints should be placed on technology assessment efforts.

1. ELEMENT: D7, TBS 0.1.7.2 (IFC 93-3)

2. ELEMENT TITLE: Assess Non-materiel Alternatives Support (As Required)

3. ELEMENT OWNER(S): Product Centers

4. ELEMENT STAKEHOLDER(S): Operating Commands, Headquarters USAF/XO, Air Force Studies and Analysis Agency (AFSAA)

5. REQUIREMENT:

a. DoD Directive 5000.1, *Defense Acquisition*, 23 Feb 91, Part 1, directs examining non-materiel solutions as part of evolutionary requirements definition.

b. DoD Directive 5000.2, *Defense Acquisition Management Policies and Procedures*, 23 Feb 91, Part 3, directs examining non-materiel solutions as part of the determination of mission needs.

6. PURPOSE/OBJECTIVES:

a. Purpose: Evaluate the potential of non-materiel solutions to resolve the deficiencies found during the campaign level deficiency analysis.

b. Objective: Determine whether the need can be satisfied without the necessity of developing a materiel solution.

7. DESCRIPTION: Non-materiel solutions are those things that do not require the acquisition of new hardware, such as changes in doctrine, operational concepts, support concepts, strategy, tactics, training or organization. A variety of procedures may be necessary to examine the impact of these changes, from detailed mission level effectiveness analyses to campaign level studies (especially for changes in doctrine). The responsibility for defining and accomplishing these analyses is with the operating command that is in the best position to define the parameters and variations to be considered. The impact of these changes can often be assessed using Product Center/XR's analysis capability. The Product Center XR will draw upon its organic capability and numerous other sources in assisting the operating command assess non-materiel alternatives. These sources include support contractor analysis, laboratory analysis, other System Program Offices, Technology Planning Integrated Product Teams and other government agencies such as Advanced Research Projects Agency, United States Army Training and Doctrine Command, United States Navy organizations, operating command study groups (e.g., Air Combat Command's Joint Studies Group), , and the AFSAA. To effectively complete this element, the responsible agency must have the output of the predecessor block, D4. Also this element is iterative in nature in that it constantly feeds its results to C7, while the user feeds D7 initial and additional information so the user may accomplish C7.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: This activity can begin when the operating command has determined that a deficiency exists and requests a Product Center's assistance in assessing non-materiel alternatives for meeting the deficiency. (Product Centers can support the operating command in determining the deficiency. This establishes the baseline against which non-materiel and materiel solutions can be assessed.)

b. Exit: The activity is complete when the operating command has determined that all non-materiel approaches have been adequately examined.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Defined scenarios, missions, and tasks, C6.

(2) The necessary guidance from the operating command on the exact service expected from the center, C7

(3) The data previously generated by the center as they assisted the operating command with deficiency analysis, D4

b. Outputs:

(1) Determination of whether a non-materiel solution to the deficiency exists. If a non-materiel solution does not exist, the results are fed to C12.

(2) The results of this element are fed to C7. The operating command then either provides further input to the center on the assistance they need or closes activity on this element.

10. KEY REFERENCES:

a. AF Instruction 10-601, *Mission Needs and Operational Requirements Guidance and Procedures*, 16 February 1993, par 1.1.6.1, provides information on the types of non-materiel solutions that the should be addressed.

b. AF Policy Directive 10-6, *Air Force Mission Needs and Operational Requirements Process*, 1 Aug 92, par 1.3, directs examining non-materiel solutions before proceeding to material solutions and directs that a mission need statement will only be developed after non-materiel options are found unsatisfactory.

11. IMPLEMENTATION TOOLS:

a. Campaign level force optimization model

b. An optimization process for force allocation can be used in the campaign analysis to determine the best strategy and operational concept.

c. Hierarchy of analysis tools from campaign level to mission/effectiveness level and possibly performance level models

12. PLANNING GUIDANCE:

a. DURATION: Varies from a few days to months depending on magnitude of assistance requested.

b. CONSTRAINTS: Driven by need dates for mission needs analysis (MNA) in support of MS 0 decisions -- part of supporting analysis required for the MNA.

c. RESOURCES: From one to several personnel including analysts, logisticians, and engineers. Various campaign and mission/effectiveness models for analysis.

d. LESSONS LEARNED: Requires a hierarchy of analysis tools from campaign level to effectiveness/performance level.

e. BEST PRACTICES: Maintaining close liaison with the operator will help define areas where the capabilities of Product Center can best be used to support non-materiel solution analyses.

f. TRAPS:

(1). Not doing complete analysis -- not getting operating command signed up initially with ground rules/assumptions for the analysis.

(2). Using undefined scenario/mission models or models that are not validated.

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1. ELEMENT: D9, TBS 0.1.9.1 (IFC 93-3)

2. ELEMENT TITLE: Develop Preliminary System Concept Options

3. ELEMENT OWNERS:

a. Operating Command
b. Product Center XR(s)

4. ELEMENT STAKEHOLDERS:

a. Implementing and Supporting Commands
b. Air Force Studies and Analysis Agency (AFSAA)
c. Headquarters United States Air Force (USAF)
d. Air Force Materiel Command (AFMC) Technical Planning Integrated Product Teams (TPIPTs)
e. Supporting Centers & Agencies
f. Laboratories
g. Industry

5. REQUIREMENT:

a. DODI 5000.2, Defense Acquisition Management Policies & Procedures, Jan 91:
(1) Part 2, Section B, General Policies & Procedures,
(2) Part 3, Section 2, Determination of Mission Need,
(3) Part 4, Requirements Evolution and Affordability, and
(4) Part 7, Logistics & Other Infrastructure for total system concerns;
b. DODI 5000.2-M, Defense Acquisition Management Documentation & Reports, Feb 91, Part 2, Mission Need Statement;
c. AFI 10-601, Mission Needs & Operational Requirements Guidance & Procedures, Feb 93, Instruction for developing & processing AF mission needs and operational requirements;
d Military Standard (MIL-STD) - 499B, Systems Engineering, Draft May 92, Section 3.8, Systems Engineering Process.

6. PURPOSE/OBJECTIVES:

a. Purpose: Provide the Operating Command with preliminary insight to potential concept alternatives that address their evolving draft mission need.

b. Objectives:
1) Quantitatively define the desired operational and functional needs at the task level (task-to-need);
2) Identify preliminary concept alternatives to be applied against the evolving draft mission need;
3) Provide system-level concept trades and sensitivities data that relate to draft operational requirements.

7. DESCRIPTION:

The initial deficiency analysis (reference C3, Mission Needs Analysis) is performed at the regional scenario level and addresses the overall capability of an integrated force to accomplish the regional objectives. Once a deficiency is identified at this level and it is determined that non-materiel solutions are not feasible, an assessment of the operational capability needs for each mission scenario of the regional analysis must be conducted. To accomplish this, the scenarios must be decomposed into segments which are then individually evaluated to determine the capabilities needed to improve the ability to accomplish the mission. An important element of this activity is the establishment of a Threat

Steering Group (TSG) to generate an approved threat data base. The TSG is typically made up of members from the intelligence community (e.g. Foreign Aerospace Science and Technology Center - FASTC, AF Intelligence and Support Agency - AFISA, Operating Command intelligence division - /IN, etc) and technical analysts. The threat data base serves as a reference for assessing and comparing the various system concept alternatives and often assists in establishing the capability levels for the potential alternatives.

A first step is to conduct a sensitivity analysis. From a baseline force allocation, selective changes in the analysis will reveal how the force allocations and scenario outcome are affected. For example, if the ability of an interdiction asset to destroy command and control facilities is parametrically varied, the impact of these changes on the overall outcome can be measured. By systematically addressing each operational capability, it is possible to determine which improvements are most beneficial to resolving the deficiencies which are measured in terms of the overall outcome. The boundaries on possible improvements, in terms of technical feasibility and affordability, need to be assessed to define the tasks that should be examined in more detail in Phase 0. Concurrently, some insight is gained into the relative merits of various combinations of operational capability improvements that will achieve the same overall level of deficiency resolution.

The preliminary system concepts must reflect functional capabilities that allow the achievement of the desired operational capabilities in order to identify, integrate and assess various potential technologies. For example, if the operational capability desired is to achieve a specified level of kill effectiveness against a column of tanks, various combinations of functional capabilities (e.g. sensor performance, weapons load, speed, turn rate, etc.) can be defined. The definition of pertinent parameters for each operational capability and the range of values for each parameter will allow the development of a set of configurations for each conceptual approach which satisfies the desired functional capabilities.

The conceptual synthesis activity produces system-level concepts to implement evolving functional architectures and provides information for evaluating the capability of the concept to satisfy operational requirements. Synthesis is defined as the performance, configuration, and arrangement of a given system and its elements, including test, operation, and support areas of concern. This may be a set of schematic block diagrams, physical and mathematical models, computer simulations, layouts, drawings, and similar engineering graphics. These portrayals should illustrate intra- and inter- system interfaces and permit traceability between the elements at various levels of system detail. Conceptual designs are used as a framework from which to develop cost, schedule, performance and risks, including technology availability and maturation (D77).

To assess the potential for improvements, technology projections are used to define advances that could be available in the time frame of the deficiency or need. These technologies are represented in the preliminary concepts to determine their impact in the total system context. The integration effects of the technologies will be dependent upon the concepts considered, so the broadest possible set of concepts should be considered. Other sources of potential system approaches include existing (operational or development) assets of U.S. commercial (D13), allied or other foreign countries (D14). Efforts should be taken to identify any candidates from these sources and include them in the list of preliminary system options. This approach should also be applied when considering any major subsystem, for both operational (in the field) and development (in a laboratory or dem/val area) perspectives (D29, D30).

Another principle activity is the development of rough-orders-of-magnitude (ROMs) estimates of the operational effectiveness (capability, risk and life cycle cost) of the various concepts. The concepts are exercised in the mission scenario(s) to determine the capability for "successfully" completing the simulated operational tasks. This part of the effort is a skeleton of the real assessment to come later

(during Phase 0) in the COEA (Cost & Operational Effectiveness Analysis). An important aspect of this development is the identification of the measures of success, since this will be the criteria for evaluating the relative merits of the preliminary system concepts. For example, in a case where the deficiency refers to combat needs, the analyses could encompass survivability in one-on-one (i.e. system versus system) situations, mission scenario levels (analytical aggregation of the one-on-one cases) and regional outcomes (analysis combined at the next summary level). Each level of the effectiveness analysis will identify and address a set of critical parameters that determine the relative merits of the concepts. These parameter sets can be viewed from a top-down development perspective (i.e. successive levels of detail), with attention being given to maintaining connectivity throughout the levels (D17, C11).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The activity is initiated when requested by the Operating Command to support their drafting of a MNS by assessing the deficiency area through desired operational capabilities and potential materiel approaches. This is a precursor to the Operating Command's sending the draft out for comments and coordination.

b. Exit: The activity is an iterative process and continues until the Operating Command has finalized their MNS, a draft of Phase 0 plans has been developed, and the documentation has been completed.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) C3, Mission Need Analysis (MNA); [includes C6/D4 & C7/D7]
  (a) Identification of major program planning objectives of the Defense Planning Guidance (DPG) to which the need responds.
  (b) Description of the mission need, deficiency or opportunity.
  (c) Descriptions of the scenario(s), baseline assets & threat information.
  (d) Description of why non-material alternatives were judged inadequate.
  (e) Description of constraints, groundrules and assumptions.
  (f) Description of Concept of Operations (CONOPS).
(2) C11, Preliminary Impacts Program Plan (IPP).
(3) C12, Preliminary MNS package.
(4) D29, Consider industry participation.
(5) D30, Evaluate laboratory advanced technology development, demonstration, and transition.
(6) D13, Determine applicability of non-developmental items (NDI).
(7) D14, Determine suitability of cooperative development (COD).
(8) D77, Preliminary cost estimates.

b. Outputs:

(1) C12, Preliminary mission need statement.
  (a) Identifies potential materiel alternatives and areas of study.
  (b) Describes & updates constraints, groundrules & assumptions.
(2) C11, Preliminary Impacts Program Plan.
(3) D13, Determine applicability of NDIs; potential area of application.
(4) D14, Determine suitability of COD; potential area of application.
(5) D15, Build and maintain program database; results from setup and execution of concept analyses.
(6) D29, Consider industry participation.
(7) D30, Evaluate laboratory advanced technology development, demonstration, and

transition.
(8) D77, Preliminary cost estimates.
(9) D17, Update Mission Area Development Plan (MADP).

10. KEY REFERENCES:

Section 5, Requirement(s) plus:

a. AF Sup 1/ DODI 5000.2, Acquisition Management Policies & Procedures,Sep 92, Part 2, Section B, Policies for interface management.

b. MIL-HNBK-499-3, System Engineering / Configuration Management (SE/CM) - Life Cycle Application, Draft Aug 92,

c. MIL-STD-1388-1A, Logistic Support Analysis (LSA), Apr 83, provides general requirements and task descriptions for performance of LSA.

11. IMPLEMENTATION TOOLS:

The previous references and the following notations provide sources for additional information that pertains to the setup and execution of the preliminary assessments for this Pre-Milestone 0 activity.
a. Design synthesis and analysis models.
b. Mission analysis and effectiveness models.
c. Requirements allocation sheet (RAS).
d. A baseline concept description (BCD) sheet is used to collect the performance requirements and constraints, as delineated by functional analysis, that apply to an individual system concept.
e. A schematic block diagram is used to develop and portray the conceptual schematic arrangement of system elements to meet system and or subsystem requirements.

12. PLANNING GUIDANCE:

a. DURATION: The successful execution of this element takes approximately 6 - 9 months for a full system-level deficiency.

b. CONSTRAINTS: Funding availability will impact the scope of resources that can be applied to the activity. Special security facilities and computational resources are typically required to incorporate special technologies or Special Access Program (SAP) information into the concepts. Operating Command priority may affect the timing and availability of analysis resources to address specific deficiencies.

c. RESOURCES: This activity typically takes a team of 10-20 analysts and planning personnel, the size depending on the number, type and complexity of the concepts to be assessed. Representation from functional disciplines should be based on a balanced system perspective.

d. LESSONS LEARNED:
From ALLCARS data base --
(1) 871, Timely Submission of Trade Studies by Contractors.
(2) 1848, Integrated System Design and Analysis.

e. BEST PRACTICES:
(1) Involve full team of stakeholders, especially the Operating Command.
(2) Develop a realistic schedule.
(3) Maintain task order agreements with industry (study organizations and major airframers) for efficient implementation.

f. TRAPS:

(1) Exceeding conceptual details; this is often a significant pitfall encountered by the project team. They must maintain an awareness that the primary objective of the pre-MS 0 activities is to develop a clear description of the MAJCOM's mission need. The preliminary investigation of potential materiel approaches is to assist in developing a better understanding of the scope of any follow-on activities.

(2) Concepts driving operational requirement levels. Similar to (1) above, the weakness is to get too engrossed in investigating the potential alternatives, to the point of the concepts indirectly (or directly, in some cases) impacting any mission operational levels that are just being identified.

(3) Considering only evolutionary approaches. There is a tendency to start with a "known reference point" and broadly extrapolating to the timeframe of the mission need. At this early stage of definitizing a mission need and investigating preliminary concept approaches, it is a good opportunity to break away from these standards and expand the thinking to innovative ideas and approaches.

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1. ELEMENT: D13, TBS 0.1.9.2 (IFC 93-3)

2. ELEMENT TITLE: Determine Applicability of Non-Developmental Items (NDI)

3. ELEMENT OWNER(S): The Office of the Assistant Secretary of Defense for Production and Logistics (OASD (P&L) SDM) is charged with overseeing DoD activity as it relates to NDI procurement.

4. ELEMENT STAKEHOLDER(S): Developing Project office, Operating Command, Air Force Competition Advocate, OSD/DUSD(AR) The Deputy Under Sectetary of Defense for Acquisition Reform.

5. REQUIREMENT:

a. DODI Directive 5000.1, Defense Acquisition, Part 1, page 4, Para 1.c, 23 Feb 91, states maximum practicable use shall be made of commercial and other non-developmental items. In describing these items, maximum practicable use shall be made of non-government standards and commercial item descriptions.

b. DODI 5000.2, Defense Acquisition Management Policies and Procedures, Part 6, Section L; Part 6, Section H, para 3.a.(3); Part 3, page 3-11; and Part 10, Section C, para 2d, Non-Developmental Items, 23 Feb 91, states policies and procedures which establish the basis for cost-effective use of commercial products and other non-developmental items in defense systems and equipment.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose of this element is to investigate purchasing/using existing products or systems rather than pursuing development of new items.

b. Objective: Identify existing or emerging products/technology that has potential to save life cycle cost. The following objectives can be used to analyze potential products/technology:

(1) Reduced developmental cost
(2) More rapid fielding
(3) Proven capability/reliability
(4) Increased competition
(5) Established logistics support
(6) Tech data developed
(7) The item is likely state-of-the-art
(8) Competitive Forces have shaped its functionality
(9) Existing established market
(10) Reduced risk

7. DESCRIPTION:

a. This is a preliminary look at non-developmental items. Only a brief outline of NDI can be accomplished in the early stages of the project.

b. At this stage, preliminary concepts are being defined to support development of the MNS (D9 and C12). The Air Force will investigate industry's available off the shelf items and will investigate them for satisfying Air Force needs (D29). To monitor industry and participates in government programs through IR&D, RFIs, RFPs, or Other Means (D29). In this area, DoD's influence on industry is primarily through Small Business Innovation Research (SBIR) and Independent Research and Development (IR&D) activities. DoD activities invite small business firms with strong research and development capabilities in science and engineering to submit proposals under the SBIR program. The objectives of this program include stimulating technological innovation in the private sector, strengthening the role of

small business in meeting DoD research and development needs, fostering and encouraging participation by minority and disadvantaged persons in technological innovation, and increasing the commercial application of DoD-supported research or research and development results. Determining applicability of Non-Developmental Items NDI (D13) is accomplished in a parallel time frame with D14.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: A material need has been identified and preliminary options are being formulated.

b. Exit: To exit, identify preliminary performance ranges, thresholds, and trade-offs associated with what is known about NDI at this point of the project. Also, perform a preliminary investigation of alternative logistics support strategy.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Requires a description of the preliminary mission need from D9.

(2) Results from market surveillance of laboratories and the industrial base through trade shows and trade magazines is the primary method for gaining knowledge of existing technology and products (D29). A cost effective analysis should be performed on the item to find if it is a viable solution to the item needed.

b. Outputs: Provide the Operating Command with insight to potential concept alternatives that address his draft mission need (D9). It is important that selected NDI alternatives flow back into this element so they can be integrated in a realistic need.

10. KEY REFERENCES:

a. Title 10 U.S.C. 2325, Preference for Non-Developmental Items, 18 Oct 87. This section of Title 10 mostly describes Congressional mandate to the Air Force to look at and use NDI in a weapon system whenever possible.

b. Proposed Strategic Plan to Pursue Acquisition Reform, 8 Jun 93. Contains draft information on using NDI as an preferred alternative to developing new systems and establishing a group of advisors OSD/DUSD(AR) to help in NDI procurement.

11. IMPLEMENTATION TOOLS:

a. Trade magazines and trade shows for market surveillance.

b. Buying ND/SD-2, Oct 90. Contact Office of the Assistant Secretary of Defense (Production and Logistics), Washington, D.C. 20301-8000. This tool mainly describes the buying process for NDI.

c. Market Analysis for Non-Developmental Items, SD-5. Contact Office of the Assistant Secretary of Defense (Production and Logistics), Washington, D.C. 20301-8000. Describes NDI as an excellent alternative to business as usual.

d. Joint Command Commercial Off-the-Shelf (COTS) Supportability Working Group (CSWG) Final Report, June 91. Contact ASC/SDC. Describes the life cycle concerns of NDI. This is an excellent guide and is highly recommended to anyone who is considering the use of NDI.

12. PLANNING GUIDANCE:

a. DURATION: You should start with the Mission Need Statement (MNS) and the Government Systems Requirement Analysis to get a handle on the architecture/configuration alternatives. This is an ongoing process throughout pre-Milestone 0 to Milestone I and will vary in duration depending on complexity of the identified mission need.

b. CONSTRAINTS: As always, timing is a major constraint, because if NDI is selected early it may become obsolete and out of production by the time the weapon system is fielded. You have limited data rights with NDI, no configuration control, and no existing AF support structure.

c. RESOURCES: All functional areas need to be involved in NDI. Much of their involvement will be in the requirements area. There will be a low level of man-hours with NDI at this stage of the project. Most of the man-hours will be put into the very important requirements area so that realistic requirements levels will be defined and a better selection of NDI will be made.

d. LESSONS LEARNED: There were 7 lessons learned in the Automated Lessons Learned Capture and Retrieval System (ALLCARS) data base. The numbers are 1449, 20009, 20012, 20016, 20045, 20047, 20084. These items all dealt with logistical support problems and problems with slightly modified NDI items. Therefore, pay special attention to these areas when considering NDI.

e. BEST PRACTICES: If NDI is not considered at the early stages of the acquisition cycle then you probably will not be able to acquire it as a NDI item later.

f. TRAPS Not taking the follow-on support and possible added life cycle costs into account when using NDI. Too much modification usually negates any life cycle cost savings.

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1. ELEMENT: D14, TBS 0.1.9.3 (IFC 93-3)

2. ELEMENT TITLE: Determine Suitability of Cooperative Development (CD)

3. ELEMENT OWNER(S): Deputy Under Secretary of Defense (International Programs)(DUSD(IP)), Assistant Undersecretary of Defense for Programs & Acquisition (USDA(P&A)), SAF/AQXI, AFMC/IA, & WL/XPI

4. ELEMENT STAKEHOLDER(S): Project Office

5. REQUIREMENT:

a. DoDI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 3, pg. 3-9, and Part 5, Section F, Para 3E. This identifies the requirement to consider potential cooperative research and development.

b. DoD 5000.2-M, Defense Acquisition Management Documentation and Reports, Feb 91, Part 4, page 4-4-1. This provides format for CD.

6. PURPOSE/OBJECTIVES:

a. Purpose: The potential for International Cooperative Research and Development of military equipment is a required alternative to be addressed in developing a Mission Need Statement (MNS) for an identified deficiency at Milestone 0. A formal Cooperative Opportunities Document (COD), with updates, will be required at Milestone I and beyond (see DoDI 5000.2 for details).

b. Objective: To determine if CD alternatives are applicable for the identified mission need. The first brief outline of applicable CD items should be identified.

7. DESCRIPTION:

a. The main activity is to determine optional concept approaches which address the mission need of the project (D9). NDI (D13) which is a parallel activity is accomplished in conjunction with CD (D14). Output is the formulation and evaluation of the Systems Concept Option (SCO) (D9), which provides the Operating Command with insight to potential concept alternatives (such as CD) that address his draft mission need.

b. The DoDI 5000.2 requirement for assessing CD mandates the consideration of buying allied systems or cooperating between our various allies on development, before initiation of a new acquisition program. A CD assessment is required for Acquisition Category (ACAT) I programs and cooperative opportunities should be investigated as part of the acquisition strategy for ACAT II, III, and IV programs. Specifically, DoDI 5000.2 specifies an order of preference for new programs as follows:

(1) Use or modification of an existing U.S. military system.
(2) Use or modification of an existing commercially developed or Allied system that fosters a non-developmental acquisition strategy.
(3) A cooperative research and development program with one or more Allied nations.
(4) A new joint Service development program.
(5) A new Service-unique development program.

c. Cooperative Development must be addressed during this stage of the program for potential questions at the Milestone 0 reviews and documentation in the COD at Milestone I.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: A materiel need has been identified and options need to be investigated.

b. Exit: To exit, you should conclude that there are/are not potential COD alternatives to the identified mission need.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: A deficiency or technological opportunity has been validated. Key inputs on the flow chart are: D9, Systems Concept Option (SCO) Formulation and Evaluation, and D29, Industry Monitor and Participates in Government Programs Through IR&D, RFIs, RFPs, or Other Means. In this area, DoD's influence on industry is primarily through Small Business Innovative Research (SBIR) and Independent Research and Development (IR&D) activities. DoD activities invite small business firms with strong research and development capabilities in science and engineering to submit proposals under the SBIR program. The objectives of this program include stimulating technological innovation in the private sector, strengthening the role of small business in meeting DoD research and development needs, fostering and encouraging participation by minority and disadvantaged persons in technological innovation, and increasing the commercial application of DoD-supported research or research and development results. Determine Applicability of Non-Developmental Items (NDI) (D13) is accomplished in a parallel time frame with CD (D14).

b. Outputs: A preliminary list of potential CD systems/subsystems. This will provide the Operating Command with insight to potential concept alternative approaches that address his draft mission need.

10. KEY REFERENCES:

HQ AFMC/XT Letter, 9 Mar 92, Development Planning Relationship to International Opportunities. This describes how CD is integrated into the program life cycle.

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: The amount of time needed to accomplish this activity is dependent upon the complexity of the mission deficiency. Forty man-hours of the project management team is a nominal estimate. Actual schedule duration for this activity is closer to two months. The most significant element of time is the request for feedback that is transmitted to the international offices by the project cadre.

b. CONSTRAINTS:

(1) Resources (time & personal) for in investigating various alternatives.
(2) Access to a central location to obtain needed information on existing and planned military and allied nation projects.

c. RESOURCES: Requires an identified focal point within the project cadre and a contact in the local international affairs office (i.e. WL/XPI).

d. LESSONS LEARNED: There are no lessons learned in the Automated Lessons Learned Capture and Retrieval System (ALLCARS) database on this item.

e. BEST PRACTICES:

(1) Start as early as possible compiling information on U.S. and allied programs which could be evaluated for joint program applicability. Consideration to buy or cooperate at or near the Milestone I decision is too late to effectively pursue overseas opportunities. Investigation of overseas opportunities must begin during development planning or (for technology push) be an outgrowth of ongoing S&T cooperation.

(2) The Defense Acquisition Board (DAB) will be much inclined to hold up programs that have not investigated ways to reduce costs to the U.S. taxpayer through cooperation. (Donald Yockey, Principal Deputy Under Secretary of Defense for Acquisition: Appearance before the Senate Armed Services Committee, 12 Jun 90). This analysis should be done to assist in making a decision, not just to fill out the paper work!

f. TRAPS: Don't forget to establish early a comprehensive protection and technology control program to identify and protect classified and other sensitive information.

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1. **ELEMENT:** D15, TBS 0.1.9.4 (IFC 93-3)

2. **ELEMENT TITLE:** Establish Database

3. **ELEMENT OWNERS:** Operating Commands; Implementing Commands; Product Centers; Industry.

4. **ELEMENT STAKEHOLDERS:** Operating Commands; Implementing Commands; Product Centers; Laboratories; Industry.

5. **REQUIREMENT:**

a. Department Of Defense Directive (DODD) 5000.1, Defense Acquisition, 23 February 1991: This directive establishes a disciplined management approach for acquiring systems and material that satisfy the operational user's needs.

b. DODD 8320.1, Data Administration, 26 September 1991: (On order)

c. Air Force Policy Directive (AFPD) 10-6, Mission Needs and Operational Requirements, 19 January 1993: This directive requires the implementation of the DOD 5000 series documents.

d. AFPD 37-1, Information Management, 5 April 1993: This directive establishes information manage policy, from its creation through its disposition. It ensures availability of information, in support of the Air Force mission, while providing for the public's right to access.

e. AFPD 63-1, Acquisition System: (On order)

f. Air Force Regulation (AFR) 55-43, Management of Operational, Test and Evaluation, 29 June 1990: Data Management is covered under paragraph 5-12. The test director should ensure the plan for data collection and analysis has been implemented before testing begins.

g. Military Standard (MIL-STD)--499B, Systems Engineering, Draft: The decision database may be digital, defined by the Government, or left open for contractor definition. MIL-STD-499 encourages minimizing deliverable data to ensure availability to the government, traceability, and compliance with Computer-Aided Acquisition and Logistics Support (CALS).

h. MIL-STD-881B, Work Breakdown Structure (WBS): This standard establishes criteria governing the preparation and employment of WBS during the acquisition of designated defense materiel items. WBS requirements established by this standard apply to all defense materiel items or major modifications.

i. MIL-STD-1388-1A, Logistics Support Analysis (LSA), 11 April 1983: The goal of this standard is to provide a single, uniform approach by the military services for conducting activities necessary to make supportability requirements an integral part of system requirements and design. LSA documentation consists of all data resulting from analysis tasks conducted under this standard. It is the primary source of validated supportability data pertaining to an acquisition program. The Chief of Logistics shall ensure LSA documentation is developed and maintained commensurate with design, support, and operational concept development. Information will be updated in a timely manner using test results, configuration changes, operational concept changes, and support concept changes, during the acquisition process.

j. MIL-STD-1388-2B, DOD Requirements for a Logistics Support Analysis Record (LSAR), 28 March 1991: This standard improves the cost effectiveness of generation, maintenance, and acquisition. It uses the technical data provided in support of the LSA program. Direction is provided for standardization of LSAR, consolidation of logistics oriented technical information, and maximum use of industry developed integrated data systems.

k. MIL-STD-1840A, Automated Interchange of Technical Information, 22 December 1987: The purpose of this document is to standardize the digital interface between organizations or systems. It provides guidance in the exchange of digital forms used for technical information requirements of logistic support weapon systems, throughout their life cycle. This application addresses technical information such as training, maintenance manuals, and their associated illustrations. It defines product data for engineering drawings and specifications that are part of the traditional technical data packages used for item acquisition. This evolving data concept provides for transfer and archival storage of information.

6. PURPOSE/OBJECTIVES:

a. PURPOSE: The purpose of the Program Database is to provide a central location for the collection and storage of accesses to all data associated with the program. This data will support applicable requirements established in section 5 and meet the information needs of the milestone decision authority, supporting staff, and review forums. It provides an audit trail of the rationale for system requirement's evolution that starts with the customer's initial request. The database will eventually contain descriptions of the system products, processes, results of analyses, ground rules and assumptions, briefings to Senior Leadership, and all applicable program information. It will support access by tools developed for program documentation management.

b. OBJECTIVES: The objective of the Program Database will be to identify, collect, and or generate data to support the decision process. The goal would be to establish a paperless system that will be accessible by all essential and authorized personnel, including contractors. This database would be the primary source of data used by the functional staff and the program manager. It will provide the milestone authority with current and historical program information in support of a decision and risk or impact assessment. It will provide an evolutionary picture of the weapon system acquisition that is upgraded to support the weapon system procurement throughout all its phases.

7. DESCRIPTION:

a. This database is a repository of information used and generated for integrated requirements capture, correlation, ranking, decomposition, and rationalization; inter-operability constraints; lessons learned; configuration alternatives, verifications, decision criteria, trade study assessments, and any other required information. It may include physical and mathematical models, computer simulations, layouts, configuration documentation, and technical data, as appropriate. A good structural design effort, up front, will make the database useful for the milestone decision process. The database should be more than a single repository of information. Newer generations of software can tie multiple sources of information together to make them appear as a single source. Databases aren't just relational anymore. Software applications allow you to access virtually any combination of data, pictures, drawings, processes, outputs, etc.

b. The goal of this database would be to provide the user access to all the pieces of a project or program (e.g., financial spreadsheets, engineering drawings, videos, briefings, and test data). The performing activity will select the specific data entry media, storage, and maintenance procedures. User identification, data requirements, understanding the problem, cost, speed, and ease of use, are probably the biggest players in database decisions.

c. An operational database will need to consider the requirements of MIL-STD-1388, MIL-STD-499B, MIL-STD-881B, MIL-STD-1840A, ANSI ASC X12, Electronic Data Interchange, CALS, Contractor Integrated Technical Information Service (CITIS), and Integrated Weapon System Management (IWSM). The management information system should provide automated tools for engineers; share program data with analyst, contractors, and the customer; and review of program data cost and schedules. There should be a paperless delivery of required data. It should establish a modular system that has a data-dependent and data-driven information architecture. The B-2 system has 13 sites consisting of the prime contractor, customer, subcontractors and associate contractors. It

has more than 3000 users, 18 subsystems, 1270 screens, 1.8 million lines of code, 4 Gbytes of data, and 1.3 million transactions per month. The databases consist of individual automated data files, integrated, using operating software, with output applications for all project team elements.

d. Additional files should be developed to consolidate data for the Pre-Conceptual Phase, and Concept Exploration and Development. These files should be integrated with a selected hierarchy of analytical models that will accomplish the analysis for campaign missions, air-to-air combat, one-on-one, Time Phase Forces & Deployment Data (TPFDD), Conventional Mating & Ranging Program (CMARPS), Logistics Composite Model (LCOM), Computer Aided Logistics Management (CALM), and additional engineering models. The results of the analysis should include supporting rationale for each one of the options under evaluation.

e. The D15 database focuses on documentation from the Mission Area Assessment (MAA) and Mission Needs Analysis (MNA). It will receive data from D9, the Preliminary System Concept Option (PSCO) study effort and provide support data for the Phase O Plans. This data will provide the foundation for supporting the Mission Need Statement (MNS).

8. ENTRANCE/EXIT CRITERIA:

a. ENTRANCE: The database should start with a customer request for assistance in identifying a potential need through data collection in support of the MNA. Place emphasis on feasibility and affordability of alternative non-materiel approaches which might satisfy the deficiencies. The result of the PSCO should support the customer's formulation of a position regarding anticipated deficiencies.

b. EXIT CRITERIA: The D15 database provides current information for the Joint Requirements Oversight Council (JROC), Defense Acquisition Board (DAB), Industry, and the Laboratories. A data package will be produced in support of the Preliminary MNS, the Phase 0 Plan, and will be frequently updated, throughout the acquisition process.

9. KEY INPUTS AND OUTPUTS:

a. INPUTS:

(1) D9, PSCO

(a) Accomplish the MNA at the regional scenario level, address the overall capability of an integrated force to accomplish regional objectives, and consider non-material solution alternatives. Negative results will require an assessment of the operational capability for each mission scenario used in the regional analysis. Separate the scenarios into segments and individually evaluate the capabilities needed to improve the ability to accomplish the missions.

(b) The synthesis activity produces system-level concepts to implement evolving functional architecture's and provide information for evaluating the capability of the concepts to satisfy operational requirements. Conceptual design analysis provides the data for developing cost, schedule, performance, and risks assessments, including technology availability and maturation.

(c) Results from effectiveness trades and sensitivities will provide the Operating Command some insight to potential concept alternatives that may resolve the identified shortfall.

b. OUTPUTS:

(1) D17, Update Mission Area Development Plans

(a) The Mission Area Development Plans (MADPs) are documents generated by the Technical Planning Integrated Product Teams (TPIPTs) at ASC. The MADPs are standard references for each of the operating MAJCOMs and contain current information on missions, force composition

and structure, threats and scenario(s) status, mission needs, technology base, and assessments of activities and plans. Annual updates are planned for each of the documents, in order to provide the latest status in the areas previously mentioned. The ASC TPIPTs are a network of key representatives from operating MAJCOMs, (ACC/DR, AFSOC/XP, AMC/XR, etc), development planners (XR, YX, etc), system program offices (SD, YJ, YA, etc), Wright Laboratory (XP, MT, etc), intelligence (FASTC) and product groups (SM, etc).

(b) One of the functions of the TPIPTs is to recommend and or monitor assessments of mission deficiencies (C12) that are identified through the MAJCOM's MNA (C3). Periodic information from deficiency assessments provides the type of information that is evaluated and incorporated into the MADPs (D9 & D15). This information covers areas such as concept alternatives, enabling technologies, threat descriptions, etc. The MADP also becomes a useful reference to sources for documentation of methodologies used to generate mission needs, identified mission needs, and groundrules used in setup and execution of the various assessments.

(2) D20a, Develop Draft Phase O Plans

(a) Support the Operating Command in identifying and documenting constraints and assumptions, alternative strategies, required tasks, resources, exit criteria, and recommendations for the Acquisition Decision Memorandum (ADM) and Program Management Directive (PMD).

(3) D20b, Develop Draft Technical Plans

(a) Incorporate the Systems Engineering/Configuration Management (SE/CM) philosophy into the process and complete support task for Phase O Plans. These activities will identify tasks and interfaces by functional discipline, initiate technical plan development, and establish specific working groups. The scope of this activity will establish a reasonably accurate technical framework for the tasks and activities that are starting.

10. KEY REFERENCES:

a. DODD 5000.1, Defense Acquisition, 23 February 1991: This directive establishes a disciplined management approach for acquiring systems and material that satisfy the operational user's needs.

b. DODD 8320.1, Data Administration, 26 September 1991: (On order)

c. DOD Instruction (DODI) 5000.2, Defense Acquisition Management Policies and Procedures, 23 February 1991: This instruction provides an integrated framework for translating broadly stated mission needs into stable, affordable, acquisition programs that meet the operational user's needs. Program acquisition decisions must be supported using analytical rationale. Analysis shall provide a historical record of the alternatives considered at each milestone decision point and an audit trail of decisions (and their rationale) affecting weapon system requirements. The database should provide software programs for engineering design, manufacturing, and logistics processes' compatible with digital information, and provide tools for incorporating analyses and data into requirements' rationale. Standard documents should request only the essential needs of the Government, describing the supplies and services in a manner that encourages maximum competition. Contractors should develop shared environments consisting of analysis tools and integrated databases. Digital data deliverables should comply with established CALS procedures.

d. DOD Manual (DODM) 5000.2M, Defense Acquisition Management Documentation and Reports, 23 February 1991: This manual implements relevant portions of DODD 5000.1 and DODI 5000.2. It provides procedures and formats for preparing milestone documentation, periodic in-phase status reports, and statutory certifications.

e. Air Force Instruction (AFI) 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 February 1993: This instruction identifies official Air Force information required for

decision making and historical purposes. It provides the guidance used for the information life cycle, describing the creation, maintenance, and disposition (AFI 37-123, Management of Records). It identifies the activities used to plan, design, model, synchronize, standardize and control Air Force Corporate data at all echelons (DODD 8320.1, Data Administration, 26 September 1991, and AFI 37-150, Data Administration and Standards Program). The following items apply to specific areas: paragraph 1.17, Documentation Control; Attachment 4, MNS Format; Attachment 5, COEA Procedures; and Attachment 6, ORD Procedures.

f. AFI 10-602, Logistics Support and Readiness Requirements: (On order)

g. AFI 14-303, Threat Support, Acquisition Process: (On order)

h. AFI 16-501, Control and Documentation, Air Force Programs: (On order)

i. AFI 33-105, Information System, Standard Programs: (On order)

j. AFI 37-1, Information Management: (On order)

k. AFI 37-123, Management of Records: Identifies the activities to plan, design, model, synchronizes, standardize and control Air Force Corporate data at all echelons.

l. AFI 37-150, Data Administration and Standards Program: (On order)

m. AFPD 10-6, Mission Needs and Operational Requirements, 19 January 1993: This directive requires the implementation of the DOD 5000 series documents.

n. AFPD 37-1, Information Management, 5 April 1993: This directive establishes policy to manage information from its creation through its disposition. It ensures availability in support of the Air Force mission, while providing for the public's right to access.

o. AFPD 63-1, Acquisition System: (On order)

p. AFR 55-43, Management Operations, Test and Evaluation, 29 June 1990: Data Management is explained in paragraph 5-12. The test director should ensure the plan for data collection and analysis has been implemented before testing begins.

q. Military Handbook (MIL-HDBK)--59A, DOD CALS Program Implementation Guide: The purpose of this military handbook is to provide general information and detailed application guidance for contractually implementing CALS requirements in weapon system and related major equipment procurements.

r. MIL-HDBK-X499-3, SE/CM, Draft: The decision database will provide an audit trail from initially stated needs and requirements to the document description of system products and processes. The repository of information used and generated at the appropriate level for the acquisition phase of integrated requirements and flowdowns; interface constraints and requirements; functional and performance requirements; system concepts; preliminary design and configuration alternatives; detail designs; verifications; decision criteria; trade study assessments; system, subsystem, and functional capability assessments; and other required documentation.

s. MIL-STD-499B, Systems Engineering, Draft: The decision database may be digital, defined by the Government, or left open for contractor definition. MIL-STD-499 encourages minimizing deliverable data to ensure availability to the government, traceability, and compliance with Computer-Aided Acquisition and Logistics Support (CALS).

t. MIL-STD-881B, Work Breakdown Structure (WBS): This standard establishes criteria governing the preparation and employment of work breakdown structures. It is used during the acquisition of

designated defense materiel items. The WBS requirements established by this standard applies to all defense materiel items or major modifications.

u. MIL-STD-1388-1A, LSA, 11 April 1983: The goal of this standard is to provide a single, uniform approach by the military services for conducting activities necessary to make supportability requirements an integral part of system requirements and design. LSA documentation consists of all data resulting from analysis tasks conducted under this standard. It is the primary source of validated supportability data pertaining to an acquisition program. The Chief of Logistics shall ensure LSA documentation is developed and maintained commensurate with design, support, and operational concept development. Information will be updated in a timely manner using test results, configuration changes, operational concept changes, and support concept changes, during the acquisition process.

v. MIL-STD-1388-2B, DOD Requirements for a LSAR, 28 March 1991: This standard improves the cost effectiveness of generation, maintenance, and acquisition. It uses the technical data provided in support of the LSA program. Direction is provided for standardization of LSAR, consolidation of logistics oriented technical information, and maximum use of industry developed integrated data systems.

w. MIL-STD-1840A, Automated Interchange of Technical Information, 22 December 1987: The purpose of this document is to standardize the digital interface between organizations or systems. It provides guidance in the exchange of digital forms used for technical information requirements of logistic support weapon systems, throughout their life cycle. This application addresses technical information such as training, maintenance manuals, and their associated illustrations. It defines product data for engineering drawings and specifications that are part of the traditional technical data packages used for item acquisition. This evolving product data concept provides for transfer and archival storage of the product information necessary for these applications.

x. Federal Information Processing Standards Publication (FIPS PUB 161), Electronic Data Interchange (EDI), 29 March 1991: This FIPS PUB adopts, with specific conditions, the families of standards known as X12 and EDIFACT. It does not mandate the implementation of EDI systems within the Federal Government; rather it requires the use of X12 or EDIFACT, subject to the specified conditions, when Federal departments or agencies implement EDI systems.

y. ANSI ASC X12, Electronic Data Interchange Convention Guide: This draft standard contains the format, and establishes the data contents of the Project Cost Reporting Transaction Set (839) for use within the Electronic Data Interchange environment.

11. IMPLEMENTATION TOOLS:

a. Logistics Support Analysis Software is available as Government Furnished Property (GFP).

(1) Submit your letter of request to:

Director USAMC Logistic Support Activity
ATTN.: AMXLC-AL
Lexington, KY 40511-5101
AC-606-293-4193 (Mr. David Henderson)

(2) The letter should contain:

(a) Your request for MIL-STD-1388-2A (Mainframe, COBOL) or
(b) MIL-STD-1388-2B (Model 204, Mainframe, SQL) or
(c) MIL-STD-1388-2B (386 PC).

b. CALS: A repository of information used and generated at the appropriate level for the acquisition phase of integrated requirements and flowdowns; interface constraints and requirements;

functional and performance requirements; system concept; preliminary design and configuration alternatives; detail designs; verifications; decision criteria; trade study assessments; system, subsystem, and functional capability assessments; and other required documentation.

(a) MIL-HDBK-59A, DOD CALS Program Implementation Guide: The purpose of this military handbook is to provide general information and detailed application guidance for contractually implementing CALS requirements in weapon system and related major equipment procurements.

(b) MIL-STD-1840A, Automated Interchange of Technical Information, 22 December 1987: The purpose of this document is to standardize the digital interface between organizations or systems. It provides guidance in the exchange of digital forms used for technical information requirements of logistic support weapon systems, throughout their life cycle. This application addresses technical information such as training, maintenance manuals, and their associated illustrations. It defines product data for engineering drawings and specifications that are part of the traditional technical data packages used for item acquisition. This evolving product data concept provides for transfer and archival storage of the product information necessary for these applications.

c. Systems and Logistics Integration Capability (SLIC): This is a DOD, Type III, validated micro computer based LSAR system used to satisfy all MIL-STD-1388-2A and 2B requirements with total independence from any other hardware and software. (ASC/ALTB, Kevin Gum, DSN 785-8572)

(a) SLIC/2A helps create and manage all MIL-STD-1388-2A LSAR data and reports. It produces all the standard MIL-STD-1388-2A reports and provides near instant response to ad hoc information queries.

(b) SLIC/2B helps create and manage all MIL-STD-1388-2B LSAR data and reports. It will produce all the standard MIL-STD-1388-2B reports and provide near instant response to ad hoc information queries.

d. Aerospace Structure Information and Analysis Center (ASIAC): ASIAC provides the aerospace structure's community with a single source for structure's information and quick response analysis capability. It is responsible for the collection, evaluation, and dissemination of scientific and technical data that is applicable to all aspects of structures, including design, analysis, and performance, with emphasis on aircraft, spacecraft, and missile structures. The quick response analysis capability applies to areas of static and dynamic analysis, structural optimization, Computer Aided Design (CAD)/Computer Aided Manufacturing (CAM)/Computer Aided Engineering (CAE) technology, preliminary structural design, vulnerability, damage tolerance, loads and temperature interaction, acoustic and vibration loads, damping technology, electronic management of information and data, and aeroelasticity. ASIAC also maintains a secure on-line terminal dedicated to the Defense Technical Information Center (DTIC) database, which is connected to the Defense RDT&E on-line service (DROLS). It uses more than 60 databases to complete literature searches. (WL/FIBA/ASIAC, Gordon Negaard, DSN 785-6688)

e. Supportability Investment Decision Analysis Center (SIDAC): SIDAC is an information analysis center dedicated to helping customers throughout the Department of Defense make wise investment decisions in the arena of weapon system supportability. SIDAC assists engineers, logisticians, and managers through the performance of modeling, analysis, and the conveyance of information in the areas of logistics research and development, technology transition/insertion/transfer, and logistics support. Customers can use SIDAC to research supportability information, request bibliographies, or ask quick-response technical questions. Customers can purchase various data books, critical reviews, and state-of-the-art reports for a nominal fee; request model software, documentation, and training; use SIDAC to perform special tasks and analyses; and use SIDAC to host and run conferences, symposia and training workshops. SIDAC has a model repository of eleven supportability-based models and access to fifteen database systems. (HQ AFMC/CIXR, Mary Grathwohl, 257-5284)

f. Survivability/Vulnerability Information Analysis Center (SURVIAC): SURVIAC is a DOD-sponsored center operated by BOOZ-ALLEN & HAMILTON Incorporated. They provide a one-stop resource for all aspects of non-nuclear survivability, lethality, and mission effectiveness. Their goal is to increase the knowledge and productivity of scientists, engineers, analysts, and program managers engaged in weapon system research, development, acquisition, and support. They can be of particular assistance in addressing the challenges of enhancing system survivability and lethality. (WL/FIVS/SURVIAC, Donna Egner, DSN 785-4840)

g. Requirements' Analysis Process in Design (RAPID): RAPID is a research and development program sponsored by Armstrong Laboratory. It emphasizes application of computer-based technology to weapon system requirement's management, rationale capture, and program documentation management. (J. Peasant, Armstrong Laboratory, DSN 785-8502].

12. PLANNING GUIDANCE: Provide information useful for activity planning purposes.

a. DURATION: It will start with a request for assistance from the customer to provide analysis support. The initial request should include the DPG, MAA, and the MNA. Use selected ground rules and assumptions for the analysis. Include the types of models used in the database or the results and rationale for any decisions made from the analysis. Update the database in a timely manner, throughout the acquisition life cycle.

b. CONSTRAINTS:

(1) Identify computer resource constraints (examples include computer language, data base, architecture, or inter-operability constraints).

(2) Database capacity (identify spare memory and throughput requirements, computer memory growth requirements, software partitioning and modular design requirements such as software module size (e.g., no greater than 100 lines of code).

(3) Additional constraints may include: Authorized access capabilities, security restrictions, training, funds, and management.

c. RESOURCES:

(1) Provide a work area for the classified database storage, including personnel office space and supplies. Grant security access to required participants, including contractors.

(2) Computer hardware and software programs will be required that provide external data access; information storage, analysis, and retrieval; documentation linkage; documentation management; analytical modeling; and Program Management capabilities.

(3) Manpower resources will be required to maintain and control access to the database.

d. LESSONS LEARNED:

(1) # 1264, Target Operating Environment: A lack of defined target operating environments will affect the AFMC's Multi-program architecture and complex integration factors. This will greatly increase the risks of successfully managing the development of the Logistics Management System. The architecture should include mandatory standards and policies for magnetic data storage, operating systems software, information processing center management software, database management system software and query language, security management software, and application code naming conventions. (AFMC/CITA, Peter Petrusch, DSN 787-6287)

(2) #1344, Schedule Plan For A Source Selection: Develop a detailed plan for the execution of source selection that will aid the flow of data and provide expedient changes to contingencies. All

data was computerized on an IBM program called "Microsoft Project." The data was placed in a network to define the internal relationships of activities and resources. A Gantt chart was used to provide schedule suspense dates and serve as a tracking tool. By computerizing the data base "what-if" scenario's could be evaluated based on unknown contingencies (i.e., slip of data reviews, modifications to the proposals, personnel conflicts or absences.) (ASC/CYX, Tom Thorpe, DSN 785-7614)

(3) #1418, Internal Financial Management: Funds for international programs is not US Government appropriated funds and does not expire. Failure to follow sound financial management can result in program execution shortfalls. The aircraft's international finance division has developed and on-line data system to track a multitude of data elements including cost allocation for Engineering Change Proposals (ECP's). The FACTS database requires a closer working relationship between the program managers, Configuration Change Board (CCB), and financial managers. (ASC/YPTI, Cindy Caughey, DSN 785-5433)

(4) #1888, Program Managers: Develop a process to ensure "best practices" are entered into the Acquisition Database. Lessons learned are evaluated by the program director for applicability and usefulness. (AFMC/XRMC, Dave Gregorovic, 257-2030)

(5) # 1982, Program Directors: Enhanced quality and quantity of information on the AFAM database. Improvements include additional lessons learned and best practices, updated references, increased number of tools such as software programs, document templates, samples, and courses. (ASC/CYM, Pat Hogt, DSN 785-0423)

(6) # 9020 (TechTip 89021), Hardness Surveillance Test Systems (PHSTS): The PHSTS, (pronounced "fasts") is a fully automated data acquisition system, designed to test a weapon's vulnerability for Nuclear Electromagnetic Pulse (EMP). The database was developed to fully document all test phases to ensure repeatability and traceability. The complete processing capability provides meaningful information several minutes after the data is acquired. Although PHSTS is quite large and requires engineering support, the PHSTS operation is continuously being upgraded with technician transparency in mind. (OCALC/TIESW, Randy Vu, DSN 336-4430)

(7) # 9063, Air Force Electronic Combat Office (AFECO [This organization has been renamed "Electronic Combat SPO"]): AFECO identifies commonalty opportunities to the Air Staff for PMD revision/direction, and builds/maintains the Electronic Combat (EC) program historical information database for all USAF EC programs. They distribute the annual funding between studies and analyses, EC test process development, mission-level simulation, and EC database development. (ASC/RWXA, MS Schraer, DSN 785-2108)

(8) # 9115, ASIAC provides the aerospace structure's community with a single source for structure's information and quick response analysis capability. It is responsible for the collection, evaluation, and dissemination of scientific and technical data that is applicable to all aspects of structures, including design, analysis, and performance, with emphasis on aircraft, spacecraft, and missile structures. The quick response analysis capability applies to areas of static and dynamic analysis, structural optimization, Computer Aided Design (CAD)/Computer Aided Manufacturing (CAM)/Computer Aided Engineering (CAE) technology, preliminary structural design, vulnerability, damage tolerance, loads and temperature interaction, acoustic and vibration loads, damping technology, electronic management of information and data, and aeroelasticity. ASIAC also maintains a secure on-line terminal dedicated to the Defense Technical Information Center (DTIC) database, which is connected to the Defense RDT&E On-Line Service (DROLS). It uses more than 60 databases to complete literature searches. (WL/FIBA/ASIAC, Gordon Negaard, DSN 785-6688)

(9) #9116 (TechTap 8905), Reliability Analysis Center (RAC): RAC maintains an extensive database containing actual field reliability performance data on thousands of components. It has access to military databases such as MODAS, MIMMS, SCE, 3M, as well as many corporate warranty databases not available to the general public. The document center includes an automated

bibliographic capability, permitting rapid identification of documents on any reliability topic. (IIT Research Institute, Michael J. Rossi, DSN 587-4151)

e. BEST PRACTICES:

(1) Use MIL-HDBK-59A, *DOD CALS Program Implementation Guide*, and MIL-STD-1840A, Automated Interchange of Technical Information to control data storage with frequent backups to avoid the loss of data.

(2) Develop an Integrated database using Information Integration Technology, Advanced Technology Transition Demonstration (ATTD) Investment, Strategy Sheet number AT-HS-243, February 1993.

(3) Implement hardware and software architecture to exploit open system standards being developed in the computer industry. This will facilitate inter-operability, extendibility, and upgradability of the database.

f. TRAPS:

(1) Non-compatible CALS systems have problems with non-standard terminology used to file or retrieve data.

1. **ELEMENT:** D17, TBS 0.1.9.6 (IFC 93-3)

2. **ELEMENT TITLE:** Update Mission Area Development Plans

3. **ELEMENT OWNER(S):** Technical Planning Integrated Product Teams (TPIPTs)

4. **ELEMENT STAKEHOLDER(S):**

a. Operating Command's
b. SPD's
c. Laboratories
d. PC/ALC Development Planners
e. Technology Transition Office (TTO)
f. Industry
g. SAF/AQT

5. **REQUIREMENT:**

a. AFMC Policy Letter (Draft), Aug 1992 - overview and charter for the implementation of TPIPTs;
b. ASC TPIPT Charter (Draft), Apr 1993 - describes purpose, objectives and function of the TPIPTs at ASC, similar charters being developed at other Product Centers;
c. SAF/AQT PMD, Uncertain date - references guidance to be provided to Labs..

6. **PURPOSE/OBJECTIVES:**

a. Purpose: Provide a comprehensive reference to the status of activities (including identified deficiencies and assessments) that are being conducted across an operating MAJCOM and the commands that are providing support.

b. Objective(s):

(1) Evaluate and compile mission needs, evolving requirements, system upgrades and alternative concepts, technologies and operational capabilities for military assets.
(2) Develop descriptions of functional areas that are in support of potential developments for operational capabilities.
(3) Identify representative system concepts that are potential alternatives for solving mission deficiencies and that can be evaluated through technology sensitivities.

7. **DESCRIPTION:** The Mission Area Development Plans (MADP) are documents generated by the Technical Planning Integrated Product Teams (TPIPTs) at ASC. The MADPs are intended to be a standard reference for each of the operating MAJCOMs (i.e. ACC, AMC, etc) and contain current information on subject areas such as missions, force composition and structure, threats and scenario(s) status, mission needs, technology base, and assessments of activities and plans. Annual updates are planned for each of the documents, in order to provide the latest status in the areas previously mentioned. The ASC TPIPTs are a network of key representatives from operating MAJCOMs, (ACC/DR, AFSOC/XP, AMC/XR, etc), development planners (XR, YX, etc), system program offices (SD, YJ, YA, etc), Wright Laboratory (XP, MT, etc), intelligence (FASTC) and product groups (SM, etc). The TPIPTs at ASC, being aligned with the operating MAJCOMs, also have interfaces (i.e. members) established with functional organizations and TPIPTs located at other product centers, Laboratories, air logistics centers and test centers (PC/ALC/TC) across Air Force Materiel Command (AFMC). Examples of these interfaces are WR/LU at Robins AFB, Rome Lab (XPT), the C3I TPIPT at ESC, the Crew Systems TPIPT at HSC, and the Theater Missile Defense TPIPT at SMC.

One of the functions of the TPIPTs is to recommend and/or monitor assessments of mission deficiencies (C12) that are identified through the MAJCOM's Mission Need Analysis (MNA) (C3). Periodic feedback from these deficiency assessments provide the type of information that is evaluated and incorporated into the MADPs (D9 & D15). This information covers areas such as concept alternatives, enabling technologies, threat descriptions, etc. The MADP also becomes a useful reference to sources for documentation of methodologies used to generate mission needs, identified mission needs (MNSs), and groundrules used in setup and execution of the various assessments. At any given point (during the calendar year), the updates could reference efforts that are just completed, in progress, or just being initiated. There is no master schedule that orchestrates these broad types of activities.

Most of the ASC TPIPTs hold individual, quarterly working meetings of core members. They assess and review a variety of activities across the MAJCOM and supporting commands or organizations. Thus, each project team that is addressing identified MAJCOM needs should: have sponsorship from one (or more) of the AFMC TPIPTs; provide status reports during the quarterly sessions; and be referenced in the MADP as appropriate.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Enter at any quarterly status/review meeting of a TPIPT with preliminary concept approaches that would support the development of Mission Need Statement(s).

b. Exit: Ends with the annual production (September) & distribution of the Mission Area Development Plan (MADP).

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Prior years' MADP from TPIPTS

(2) Preliminary System Concept Options (SCO) (D9 & D15)

(3) MAJCOMs Preliminary MNS (C12); data for the mission(s), their objectives and generic capabilities that were referenced, also the relative priority and timing of the need; operational constraints and environments of the mission(s) being evaluated.

(4) Results of the Mission Needs Analysis (MNA) (C3).

b. Outputs:

(1) Feedback to project(s) Draft MNS (C12); refinements for material alternatives and operational constraints;

(2) Preliminary or interim guidance for technology needs to be provided to appropriate Laboratories (D18). The TPIPTs publish an annual Technology Investment Recommendation Report (TIRR) along with the MADP.

10. KEY REFERENCES:

a. AFMC Policy for the TPIPTs (Draft), 1992 - document being coordinated by AFMC/XRX.

b. Guide to Technology Master Process, AFMC/DPUL, 30 Oct. 92 - describes the areas of interface between the Technology evolution and TPIPT developments.

c. Policy Letter, Gen Ronald Yates, Feb 1992 - describes the AFMC Commander's vision for providing integrated support to the MAJCOMs; refers to Technical Oversight Centers (TOCs), which were precursors to TPIPTs, as a means of achieving this support.

11. IMPLEMENTATION TOOLS:

a. TPIPT process guidance; ASC/XRS and AFMC/XRX; Charter, policy and guidance.

12. PLANNING GUIDANCE: The AFMC TPIPTs cover more than one mission and functional area and get the stakeholders involved to work their areas of responsibility. This is an important step in the compilation of essential development and acquisition information. With the TPIPTS just being formed, this multi-organizational network will continue evolving over the next couple of years.

a. DURATION: Updates to the MADP commence 11 months prior to planned publication; in other words, right after the annual publication each September; it is a continuing process. Efforts that are addressing individual deficiencies are periodically exchanging results of their activities through the TPIPTs.

b. CONSTRAINTS: The quantity, quality and completeness of available data depends upon the number and extent of progress of various project teams that are evaluating mission deficiencies. Schedules of these various project teams that are identifying or addressing mission area deficiencies are not necessarily coordinated.

c. RESOURCES: Requires active participation of the TPIPT stakeholders and focal points from major project teams; product center XRs are OPRs.

d. LESSONS LEARNED: This is in it's infancy, but:

(1) Maintain strong presence from the Laboratories, SPDs and Lead MAJCOMs.
(2) Keep Hq and Air Staff in the loop; helps prevent "stumbles", i.e. delays in the planning and programming of development efforts.
(3) Continuously cross-check with the stakeholders and other TPIPTs; quarterly status and assessment meetings are normally conducted by each TPIPT;
(4) Communication is an important factor; do not let it become a big problem by letting it lag because of parochial interests (paradigms?).

e. BEST PRACTICES: Maintain cognizance of the usefulness that any of the development activities could add to the overall mission area evaluations and plans. Many separate activities are being conducted at the same time across the stakeholders' organizations. Project and program (i.e. MADP, ATTD reports, SENTAR evaluations, etc.) documentation is an important but often overlooked requirement.

f. TRAPS: Procrastination; it is almost impossible to start this activity a few months prior to publication and expect to have a quality document.

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1. **ELEMENT:** D18, .TBS 0.1.9.7 (IFC 93-3)

2. **ELEMENT TITLE:** Prepare Technology Guidance

3. **ELEMENT OWNER(S):** Technical Planning Integrated Product Teams (TPIPTs)

4. **ELEMENT STAKEHOLDER(S):**

a. ASC/XR
b. Laboratories
c. SPDs
d. PC/ALCs
e. Operating Commands
f. Technology Transition Office (TTO)
g. Industry
h. SAF/AQT

5. **REQUIREMENT:**

a. AFMC Policy Letter (Draft) - establishes policy and charter for TPIPT functions.

b. ASC/XR TPIPT Charter (Draft), May 93 - outlines mission and function of the mission-oriented TPIPTs at ASC.

c. SAF/AQT PMD - reference to guidance to be provided to Labs.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: Purpose is to provide guidance to the laboratories in planning the development, transition, and insertion of technologies for system upgrades, new or modified systems, and emerging concepts.

b. Objective(s):
(1) Identify the Critical Mission Needs (CMN) that will help focus technology developments.
(2) Describe functional areas of potential technology developments.
(3) Present notional or representative future systems with a description of the key technology areas.

7. **DESCRIPTION:** This activity involves the collection of identified technology needs from both mission and functional Technical Planning Integrated Product Teams (TPIPTs) and related development analyses (C13, D9). This information is collected, compiled, and reviewed under broad technology areas by each of the TPIPTs across AFMC (D17). With this information being provided as guidance, the laboratories can identify technology needs and performance parameters for emerging technologies and further research in their broad technology areas that will support the capability needs of the MAJCOMs. This becomes the starting point of the Integrated Weapon System Planning (IWSP) for Technology Base and Technology Maturity. It also helps establish the ground work for the Technology Transition Manager to start and/or continue work on Technology Transition Plans and applicable Advanced Technology Transition Demonstration Programs (ATTD's) and Critical Experiments (CEs).

The activity is currently an annual exchange with the Laboratories, covering several sessions thoughout the year (see prior year's TIRR). Plans are being considered for also including industry and other government laboratories in this exchange. It precedes the Hq AFMC preparations of an annual strategic technology investment plan (STIP) as outlined in the Technology Master Plan (TMP).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Enter after updates to the Mission Area Development Plans (MADPs) have determined a direction or focus for technology.

b. Exit: Ends with the production & distribution of the annual Technology Investment Recommendation Report (TIRR).

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Prior years' TIRR from TPIPTS (D18).
(2) Preliminary System Concept Options (SCO) (D9).
(3) Updated Mission Area Development Plans (D17).
(4) MAJCOMs MNS Staffing and Coordination (C13); operational constraints and environmental conditions; description of the generic mission(s) that resulted in the need being identified.

b. Outputs: The output of this activity is guidance on the technology needs that are provided to appropriate Laboratories (D30). The TPIPTs publish an annual Technology Investment Recommendation Report (TIRR) and a MADP that describes 15 to 20 years of planned Air Force developments across the Laboratories, SPDs/PGMs/MGMs, and MAJCOMs.

10. KEY REFERENCES:

a. Guide to Technology Master Process, AFMC/DPUL, 30 Oct. 92 - describes the areas of interface between the Technology evolution and TPIPT developments.

b AFMC Policy for the TPIPTs - Draft document being coordinated by AFMC/XRX.

c. Policy Letter, Gen Ronald Yates, Feb 1992 - describes the AFMC Commander's vision for providing integrated support to the MAJCOMs.

11. IMPLEMENTATION TOOLS:

a. TPIPT process guidance, currently being documented in ASC/XRS.

12. PLANNING GUIDANCE: This technology guidance from the TPIPTs covers more than one mission area and gets the stakeholders involved to work their areas of responsibility. This is an important information exchange. Because the TPIPTS are just being formed and the TMP is changing, this will probably require some fine tuning over the next couple of years.

a. DURATION: Typically requires 1 week to finalize documentation, 2 to 3 months of preparation activities, and continual interfaces and exchanges maintained through the TPIPT-level activities. There are several individual events that contribute to the overall preparation:

(1) MAJCOM Requirements Review; 2-3 day annual event; March timeframe.
(2) Spring Technology Reviews: 1-3 day event at each AF Laboratory; highlights 6-3 and some 6-2 development; May-June timeframe.
(3) Technology Area Plan Reviews: MAJCOMs, Product Center XRs, TPIPTS and SAB critiques of ATTDs and plans; May-Aug timeframe.
(4) XR Exchange: between Product center and Laboratory; focus on establishing Critical Mission Needs; 2-3 Days over 2-week period; Jun-July timeframe.

b. CONSTRAINTS: The quantity, quality and completeness of available data depends upon the number and extent of progress of various project teams that are evaluating mission deficiencies. Schedules of these various project teams that are addressing identified mission area deficiencies are not necessarily coordinated.

c. RESOURCES: Requires active participation of the TPIPT stakeholders and focal points from major project teams; product center XRs are OPRs.

d. LESSONS LEARNED: The publication of the TIRR is a single event, but its development requires year-round, active participation by TPIPT stakeholders. This is particularly important for the functional areas and their technical disciplines. Sources of useful information include:

(1) MAJCOM existing MNS and evolving MNA.

(2) Preliminary Concepts identified during draft MNS.

(3) Preferred alternatives selected for Milestone I.

(4) Sustainment needs from System Product Directors.

(5) Technology thrusts, including 6-2 funded efforts.

e. BEST PRACTICES: Summarizing across all mission and functional areas is highly important. It is essential to maintain an AF-wide perspective in feedback/guidance to the Labs.

f. TRAPS: Waiting too long before starting the framework and draft content of laboratory guidance. It is almost impossible to start this activity a couple of months prior to the TIRR publication.

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1. ELEMENT: D20A, TBS 1.1.1.2 (IFC 93-3)

2. ELEMENT TITLE: Develop Draft Phase 0 Plans (AFMC Centers)

3. ELEMENT OWNER(S): Assigned AFMC Product Center (PC) and/or Air Logistics Center (ALC) Project Team. Typically, Phase 0 systems acquisition activities will be assigned to a PC, with very limited ALC support through milestone I. ALC assignments will be more pervasive with development activities associated with modifications to fielded systems.

4. ELEMENT STAKEHOLDER(S):

- Air Staff (USAF/XOR, SAF/AQX)
- Operating Command(s)
- Air Force Materiel Command (AFMC/CC, XR)
- AFMC Product and Air Logistics Centers (PCs/ALCs)

5. REQUIREMENT:

- AF Regulation 800-1, 16 Feb 90, "Air Force Acquisition System," paragraph 5.c, identifies the acquisition management responsibilities of Air Force acquisition managers.

- AF Instruction 10-601, 1 Oct 92, "Mission Needs and Operational Requirements Guidance and Procedures," Attachment 2, identifies the Major Command (MAJCOM) and Field Operating Agency (FOA) pre-Milestone I responsibilities.

6. PURPOSE/OBJECTIVES:

a. Purpose: Support the lead MAJCOM to develop the Air Force preliminary Phase 0 planning position. For Air Force-led premilestone I activities, the lead MAJCOM is typically an operating command.

b. Objective(s): To identify and document the following planning information to support the lead MAJCOM completion of preliminary Phase 0 planning:

- Phase 0 constraints and assumptions;
- Alternative strategies and organization for completing Phase 0 objectives;
- Identification of all tasks required to complete Phase 0 objectives;
- Schedule estimates with exit criteria for completing all Phase 0 objectives;
- Estimates of required resources needed to complete Phase 0 objectives;
- Content recommendations for the Acquisition Decision Memorandum (ADM) and Program Management Directive (PMD) (as required).

7. DESCRIPTION: After the Operating Command has identified an operational need that cannot be met through nonmateriel means, a Mission Need Statement (MNS) will be written, and the Operating Command will indicate a need to proceed to a milestone 0 decision. At this point the lead MAJCOM should initiate planning activities to identify the desired participants, strategies, organizational structure and relationships, and associated costs and manpower required for Phase 0. To be useful, the Phase 0 planning activities must be a coordinated effort between all of the government and industry (to the extent possible) organizations expected to implement the plans when approved.

AFMC PCs and ALCs are major stakeholders in all potential Air Force acquisition programs and will typically provide the lead MAJCOM with the majority of the Phase 0 planning information to support these programs. The Integrated Weapon System Management (IWSM) philosophy and principles discussed in AFMCP 800-60 should be used as overall guidance for establishing a quality team and plan

for the PC/ALC Phase 0 activities. One of the principles that IWSM directs is the creation of integrated product team(s) (IPTs) to execute the Phase 0 activities. The make-up of the IPT(s) should include personnel from each of the organizations and technical disciplines critical to achieving the Phase 0 objectives. For Phase 0 activities this typically will include resources from program management, program development, development planning, engineering, logistics, test, financial management, contracting, studies and analysis, the laboratories, industry (if appropriate), and other organizations as required. The organization responsible for program development within the PC/ALC will typically be assigned the lead for Phase 0 and should typically lead the IPT planning activities. Within most AFMC PCs/ALCs, the XR community is the responsible organization for premilestone I activities. At ASC, however, YX would be responsible for Phase 0 planning and execution.

The IPT(s) should work directly with the lead MAJCOM to identify critical planning information like the purpose and objectives of the Phase 0 activities, the role of the PC/ALC, and any constraints and assumptions the lead MAJCOM wants to apply to the PC/ALC activities, before attempting to plan their activities in any detail. The PC/ALC Phase 0 plans resulting from this activity must meet the lead MAJCOM stated objectives given any constraints or assumptions they may have applied. It is important each IPT leader keep their IPT focused on this point to ensure each objective is adequately accounted for.

Having identified their purpose and objectives, the IPT needs to determine its strategy for accomplishing their assigned Phase 0 objectives. The strategy should discuss the overall business and technical approaches/processes to be used by the PC/ALC to accomplish the objectives. It should specifically bound the scope of the work to be performed and identify the major activities to be completed to satisfy all assigned objectives. Analytical methodologies and models to be used should be considered (see D20B). Potential risks should be identified. Pollution prevention and other environmental and political concerns must be addressed. Known constraints such as funding, manpower, schedule, etc., must also be considered for their impacts on the strategy. The IPT should develop several different strategy approaches, and then weigh the pros and cons of each approach before settling on a preferred strategy. Depending on the significance of the Phase 0 activity, the IPT may want (or may be required) to obtain an independent review of their various strategy approaches before choosing a preferred direction. Typically, independent reviews are accomplished through the use of acquisition strategy panels (ASPs). See D61 for more information regarding the ASP.

Hand-in-hand with developing the strategy, the IPT must identify all of the government and/or contractor organizations needed to support the achievement of the PC/ALC assigned objectives. The extent to which contractors will be involved must be determined as part of the strategy, as well as how they will be procured and reimbursed for their efforts (see D34). Any other projects or programs with which the PC/ALC Phase 0 activities might interface (Phase 0 munitions projects might interface with various platform programs for instance) need to be identified. If any steering or working groups will be formed, they should be identified, their general role(s) and responsibilities should be documented, and an OPR assigned to ensure their timely formation (see D22 and D23). When all of the participants have been identified, the IPT must determine how they will be organized to accomplish the work required to achieve their assigned Phase 0 objectives. Organizational responsibilities should be assigned and agreed to through a Memorandum of Agreement (MOA) or other commitment document, if appropriate.

Once the strategy and organization have been determined, the IPT should identify all of the tasks necessary to complete each of PCs/ALCs assigned objectives and determine who will lead the task and the amount of time and resources required to complete each task. Don't just focus on technical activities. You also need to account for tasks and time required for administrative and management activities. A good example here would be accounting for tasks and time to manage and reduce or eliminate identified project risks (see AFMCP 800-52 for more information on risk management). Both government and contractor tasks should be included in this assessment. Well-defined entrance and exit criteria should be established for each task identified. Identifying this information is critical to developing an event-driven schedule that is based upon the successful completion of identified tasks and objectives.

Also with this information, the IPT can justify schedule, funding, manpower, and other needs required to achieve their assigned objectives. If the IPT receives top-down direction to complete tasks by a given date, this information will typically allow the IPT to more successfully negotiate a more reasonable timeline. Failure to develop this information typically results in high-risk calendar-driven schedules that have an undetermined chance of successful completion.

Phase 0 planning and coordination can be very frustrating and time consuming. At this very early juncture in an emerging acquisition program, all of the objectives of Phase 0 may not be clear, or even well defined, making planning very difficult. Phase 0 plans are often developed only at a very high level, (i.e. strategy only), with initial corresponding schedules, resource needs, and commitments "guesstimated" by the project team. This is OK, if as the objectives of the activity become clearer with time, the details of the plan are filled in incrementally as the team proceeds towards each objective to account for this better understanding. As the details are filled in, the IPT must exercise appropriate judgement to adjust schedules and resource needs as required. Such an approach can allow the IPT to more rapidly develop and coordinate their plans and can help maintain momentum and minimize the amount of rework required if the strategy changes. There are drawbacks to this incremental approach, however. The initial "guesstimates" are usually fraught with errors because, in haste, the IPT didn't think through all of the processes required to complete each task. More likely, however, once the IPT starts to execute these "high level" plans, they won't be able to find time to follow up on the details they omitted earlier. This typically results in schedule slips, increases in funding and manpower requirements, and lower quality products than desired because mandatory reviews or approvals were overlooked, necessary tasks were forgotten, other task results weren't available in time, or a host of other reasons. What the IPT wants to avoid is the attitude that "there's not enough time to do it right the first time, but we'll find time to do it over again if we have to." Developing and coordinating plans in as much detail and as early as possible and then executing and measuring progress against these plans is the best approach.

After the plans have been developed, they should be documented and coordinated within the PC/ALC and with any supporting organizations (such as Industry) before being forwarded for coordination and/or approval by the lead MAJCOM. The "best practices" section of this document provides an approach to documenting the Phase 0 plans. This documentation can also serve to support the lead MAJCOM's inputs to the Program Management Directive (PMD) and the Acquisition Decision Memorandum (ADM), if it chooses to, or is asked to, be actively involved with their development.

8. ENTRANCE AND EXIT CRITERIA:

a. Entrance Criteria

MAJCOM /CC Direction to Proceed to Milestone 0 - The Operating Command determines they have identified an operational need that they do not believe can be satisfied by nonmateriel means. They decide a MNS must be written and request an Air Force decision through USAF/XOR to proceed to a Milestone 0 decision (see C12). During this general timeframe the User and the developer should get together and begin planning for Phase 0 activities.

b. Exit Criteria

Concept Studies Approval - When the Milestone Decision Authority (MDA) is satisfied with the MNS and any requested Phase 0 planning information, approval is given to proceed with Phase 0 concept studies. The MDA will issue an ADM, and AF/XOR will issue a PMD. After receiving these documents the lead MAJCOM, in partnership with the acquisition community, should update Air Force Phase 0 plans as required to bring them in line with the guidance provided by the ADM and PMD (see C16, D22, and D23).

9. KEY INPUTS AND OUTPUTS:

a. Key Inputs

(1) *Phase 0 Purpose, Objectives, Constraints, and Assumptions* - The lead MAJCOM should explain the purpose of the Phase 0 activities, the objectives for PC/ALC involvement, and any known or anticipated constraints and assumptions impacting PC/ALC Phase 0 activities. The PC/ALC should work closely with the lead MAJCOM to ensure appropriate objectives are assigned and reasonable constraints and assumptions are applied (see C14). This information forms the basis of the PC/ALC planning activities. Any plans developed without obtaining a coordinated position between the lead MAJCOM and the PC/ALC regarding this information will not likely meet the objectives of Phase 0.

(2) *Phase 0 Technical Plans* - The technical planning information developed in D20B is a sub-set of the planning being accomplished by this activity. The information developed from that activity should be treated as an integral part of this activity.

(3) *Phase 0 Contracted Studies Strategy* - DoD policy requires that the contracting approach must permit an equitable and sensible allocation of risk between Government and Industry (see DODD 5000.1, Part 1, paragraph 3). The strategy for procuring contracted studies is developed in D34, and is also a sub-set of the planning being accomplished by this activity. The information developed from that activity should also be treated as an integral part of this activity.

(4) *Pre-Milestone 0 Database* - It is imperative that the planning and technical information generated to support the Milestone 0 decision be analyzed for its impact on Phase 0. Analytic baselines such as groundrules, assumptions, threat descriptions, scenarios, force structure, operational and support concepts, and other planning numbers will greatly impact future analytic results and must be accounted for in the Phase 0 plans. These planning inputs, and the results of preliminary trade-off studies must be captured and transferred to the Phase 0 effort to ensure consistency and continuity and to avoid duplication of effort (see D15).

b. Key Output - The focus of this activity is for the PC/ALC to determine it's preliminary Phase 0 planning position in support of the lead MAJCOM's preliminary Phase 0 planning activities (see C14). The PC/ALC planning position should document all constraints and assumptions which apply to their assigned Phase 0 tasks. It should also document the PC/ALC's business and technical strategies, and corresponding commitments, for accomplishing assigned Phase 0 tasks. The "best practices" section of this document provides an approach to documenting the Phase 0 plans. Where applicable, this information should follow the IWSM philosophy and principles outlined in AFMCP 800-60.

(1) *Phase 0 Constraints and Assumptions* - All known constraints and assumptions that apply to the PC/ALC Phase 0 plans should be identified to the lead MAJCOM.

(2) *Phase 0 Strategy and Organization*

(a) *Strategy* - The PC/ALC must determine its business and technical strategies for accomplishing assigned Phase 0 objectives. The IPT(s) should identify as many executable strategies as required to provide the lead MAJCOM with flexibility in determining an integrated Air Force Phase 0 strategy. The IPT(s) will likely have to work many iterations of different strategies with the lead MAJCOM to determine the best overall PC/ALC alternative for the Air Force.

(b) *Organization* - The IPT(s) should identify all required project participants and how they will be organized to accomplish the work required to achieve their assigned Phase 0 objectives. Organizational responsibilities should be assigned and agreed to through a Memorandum of Agreement (MOA) or other commitment document, as appropriate. If any steering or working groups will be formed,

they should be identified, their general role(s) and responsibilities should be documented, and an OPR assigned to ensure their timely formation (see D22 and D23).

(3) *Phase 0 Work Statement* - Given a business and technical strategy, the PC/ALC should identify to the lead MAJCOM all work required to successfully meet assigned Phase 0 objectives. Each assigned objective should be broken down by functional discipline to identify objectives for each discipline. The IPT(s) should identify all tasks required to achieve each functional objective and all of the interrelationships with other functional tasks. Project milestones should be established that identify the completion of major groups of tasks and/or objectives. Appropriate entrance and/or exit criteria should be established jointly by the lead MAJCOM and the IPT(s). These criteria should describe what event(s) must occur before each task or milestone described by the Work Statement can be considered complete. A description of the identified work should be documented in some form of Work Statement and coordinated with the lead MAJCOM.

(4) *Schedule Estimates* - The PC/ALC should provide the lead MAJCOM with estimates of the time required to achieve the exit criteria for each of the tasks and milestones described by the Work Statement. Using network analysis methods, the IPT(s) should analyze the Work Statement tasks and milestones and corresponding duration estimates to develop the schedule estimate. The development of the schedule may depend on known resource constraints. See the "*Implementation Tools*" section of this document for more information on network analysis.

(5) *Resource Estimates* - Based on the Work Statement identified tasks and the corresponding schedule estimate, the PC/ALC should provide the lead MAJCOM with estimates of manpower, funding, and other resources required to accomplish assigned objectives.

(6) *ADM and PMD Inputs* - It is in the best interest of the Air Force for the lead MAJCOM to submit recommendations to AF/XOR regarding the content of the Phase 0 ADM and the PMD. The key outputs listed above will provide all of the PC/ALC recommendations required for the lead MAJCOM, in coordination with the acquisition community, to develop their ADM and PMD position.

10. KEY REFERENCES:

· DoD Directive 5000.1, 23 Feb 91, "Defense Acquisition," provides overall DoD defense acquisition policies.

· DoD Instruction 5000.2, 23 Feb 91, "Defense Acquisition Management Policies and Procedures," Section E, paragraph 2, provides DoD policies on program plans.

· AFMC Pamphlet 800-60, 31 Mar 93, "Integrated Weapon System Management (IWSM) Guide," describes AFMCs IWSM philosophy and provides guidance and evolving processes for implementing this philosophy.

· AFMC Guide on Integrated Product Development (IPD), 25 May 93, describes AFMCs IPD philosophy and provides guidance and evolving processes for implementing this philosophy.

· AFMC Pamphlet 800-52, 4 Dec 92, "Acquisition Risk Management Guide (Preliminary)," identifies potential risk areas and tools and techniques for risk management.

· AF Policy Letter 91M-001, 20 Jun 91, "Early Industry Involvement in Acquisition Planning," establishes SAF policies regarding early Industry involvement in acquisition planning.

· AFMCR 500-18, "Commanders Policy - Systems Representative (SYSREP)," describes AFMCs policies regarding the role of the SYSREPs and the acquisition teams interface with them.

11. PLANNING GUIDANCE:

a. DURATION: The duration of the Phase 0 planning support activities will vary depending on a variety of factors such as potential program size, complexity, available resources, political sensitivity, number of organizations involved, joint service and/or international involvement, etc. The major driver will likely be the number of organizations involved since thorough coordination of all aspects of the plan is required to have a high confidence in its executability. For fairly simple Phase 0 efforts, the PC/ALC should allow for a minimum of about one month to build and coordinate planning information. For potential DAB programs adequate planning and coordination could take more than 6 months.

b. CONSTRAINTS:

(1) The PC/ALC must include all constraints and assumptions identified by the lead MAJCOM as part of their planning activities.

c. RESOURCES: IWSM guidance stresses the use of IPTs to accomplish the planning for, and subsequent execution of, AFMC supported projects or programs (see AFMCP 800-60, Chapter 2, paragraph e.4). Using this concept, all PC/ALC functional disciplines (i.e. XRs, program management, engineering, logistics, financial management, test, contracting, studies and analysis, labs, industry, etc.) should be actively involved as a team to develop the PC/ALC planning position. The assigned IPT leader, or the lead PC/ALC Commander, may want to convene a PC/ALC or AFMC ASP to review and approve the recommended PC/ALC position. The IPT should assign at least one full time resource for development, maintenance, and continuing analysis of the plans and schedule.

d. LESSONS LEARNED: The following lessons learned are just summarizations of a few of the applicable planning lessons extracted from the DoD Lessons Learned Database (LLD). Information on how to access the LLD can be found in the *"Implementation Tools"* section of this document.

(1) *Personnel Assigned to Joint Service Acquisition Programs* - Joint Service acquisition programs have service-unique requirements that need to be addressed in order to avoid fielding unsupportable systems (see LLD - 1408 (Air Force)).

(2) *Scheduling of Programs/Projects* - When one milestone in a program/project slips, irreversible problems can be created unless the impacted milestones are also slipped or other management actions taken. Programs/projects attempting to manage without knowing the critical path will most likely deliver an incomplete product late and over budget (see LLD - 142 (Air Force)).

(3) *DoD Facility/National Laboratory Capabilities* - Extensive government research, development, test, and evaluation (RDT&E) capabilities are available to support acquisition programs. Potential savings to the government have been lost by not considering in-house resources and capabilities to support program/project objectives (see LLD - 1469 (Air Force)).

(4) *Project Office Functioning as an Integrating Contractor* - Project offices must develop a management approach and acquisition strategy that are consistent and complimentary to its in-house capabilities with respect to personnel and analysis tools (see LLD - 1510 (Air Force)).

e. BEST PRACTICES:

(1) *Develop a Master Plan and Master Schedule* - The planning inputs the PC/ALC provides to the lead MAJCOM should be documented in detail. Once the PC/ALC has identified and committed to provide the lead MAJCOM with particular Phase 0 products and services on a given timeline, it is necessary for the IPT to know at any point in time where they stand towards meeting those commitments. Program managers have recognized for years that baselining to a master schedule of tasks and tracking progress and change against that baseline is the best way to attain this knowledge.

Good business practice dictates the development and maintenance of a master program schedule that is event (not calendar) driven and identifies all of the tasks and their interrelationships required to achieve all commitments.

To develop a Master Schedule requires that certain planning information exist. For the purpose of this discussion, this information will be provided by the Master Plan. The Master Plan needs to identify all the terms of any agreements between the PC/ALC and the lead MAJCOM for Phase 0. It should be developed by the IPT and should integrate all of the functional disciplines business and technical plans and strategies to provide a single view of the project direction. It should identify all participating organizations, their roles and responsibilities, and how they will organize to meet commitments. AFMC provides no set format or guidance for such a planning document, however an outline of the content might be:

- Audience List
- Work Statement
  - Purpose
  - Objectives
  - Constraints
  - Assumptions
- Project Environment
  - Organization
  - Management and Control
  - Other Environmental Factors
- Resource Requirements
- Milestone Schedules

The resource requirements and milestone schedules are summarizations from the Master Schedule, and are documented after the Master Schedule has been developed. Thus, the Master Plan provides a complete summary of the work to be accomplished by the PC/ALC, what resources are required to accomplish the work, their responsibilities, how they're to be organized, and the overall schedule required.

The Master Schedule identifies all the activities required to achieve each of the objectives identified in the Master Plan. In addition the Master Schedule depicts the order in which the activities must be performed, provides estimates for the calendar time required to complete each activity, and provides start and end dates for each activity. There are a variety of references that provide detailed information on how to develop and track schedules; see the "Implementation Tools" section of this document for more information. Like the Master Plan, AFMC provides no set format or guidance for such a Master Schedule document, however an outline of the content might be:

Required Activities (Work Breakdown Structure Format)
- Purpose and Objective
- Entrance and Exit Criteria
- Inputs and Outputs

Schedule Data (for each activity)
- Predecessor Activities
- Duration
- Constraints
- Resource Requirements

Network Analysis of Required Activities
Schedule Chart (Milestone Gantt Format Preferred)

The responsibility for developing a Master Plan and Schedule belongs to the IPT. It is IPT leaders' responsibility to ensure all supporting organizations participate in developing a logical and cohesive plan that can be realistically executed given known constraints, (i.e. schedule, resources, etc.). Failure to do so will typically lead to the IPT establishing commitments which are not achievable. Once the Master Plan and Schedule have been coordinated by all participating activities, they are baselined. All progress is tracked and compared against these baselines. All changes to these baselines are evaluated for impacts to resource and schedule requirements. Major changes may require renegotiating commitments and establishing new baselines. Only by maintaining the Master Plan and Schedule in this

way will the IPT have the insight required to measure progress towards meeting their assigned objectives and to report the results to their customer(s).

Without a Master Plan and Schedule, the IPT will be forced into an "on-the-fly" or "by the seat of the pants" approach to managing and executing their assigned responsibilities. The IPT will only have a "gut feel" for where the project stands toward meeting objectives. Customer requirements will likely be overlooked, or not fully understood. Required tasks will be forgotten, or worse yet not even recognized as being necessary. Resource requirements will be difficult to justify and obtain. Schedules will be, at best, unjustifiable guesses at when activities will be complete, or driven by artificially set calendar dates instead of achievement of milestones or events.

(2) *Maintain Model Schedules* - Maintain historical work breakdown structures (WBS) and schedules for activities that are conducted repeatedly and keep them on file for future reference (see comment under "Traps"). Tailoring historical files can greatly decrease the amount of time required to pull together future plans and schedules. There are many Premilestone 0/I activities where model schedules exist for use by project teams. Contact the following sources for more information:

· ASC/FMCS, Scheduling Branch	DSN 785-6101
· ASC/CYX Source Selection Process	DSN 785-7613
· ASC/YXD Pre-Milestone I Process	DSN 785-1847
· ASC/SDF Schedule Initiative	DSN 785-9777
· ASC/YTX Generic Basket SPO Schedule	DSN 785-7177
· ESC/FMA Program Scheduling Initiative System	DSN 478-5376
· ASC/ALLB (CSNAS)	DSN 785-6587

(3) *Build an Early Partnership with Industry* - It is Air Force policy (see AFP 91M-001) to facilitate early, open, and effective communications between industry and government during the acquisition planning process. This early communication is vital to achieving ultimate program success. Industry participation in Pre-Milestone I activities can be a great benefit for both the government and the industry participants. The Government can readily tap years of industry independent research and development (IR&D) and impact future industry IR&D spending or scheduling plans. Industry can gain insight to early Government planning information to develop better long range plans and put themselves in a better competitive position if an acquisition program actually does develop.

(4) *Get the AFMC Systems Representative (SYSREP) Involved* - The SYSREP provides a day-to-day interface between AFMC and operating commands in a number of key areas. These areas include needs formulation, requirements refinement, technology planning, development and evaluation, and systems requirements formulation and evaluation. It is AFMC policy (see AFMCR 500-18) for the SYSREP to be aware of, and support, all AFMC activities with the Operating Commands. Let the SYSREP know what you're doing.

(5) *Consider Government Facilities Capabilities* - The IPT should identify and evaluate DoD laboratory facilities which may have the available expertise and capabilities to perform some of the required development and/or testing needed to meet project requirements. Visits to these facilities would instill confidence in the team as to the abilities of these personnel and their facilities. The benefits of using these in-house resources instead of contractors could be significant in terms of cost savings, without giving up product quality or negatively impacting schedule.

(6) *Team Training for IPT Pesonnel* - One of the most critical areas of program development and execution is the formation of a solid, cohesive team early in the acquisition process. Once the initial IPT members are identified, team training should be provided to the entire IPT as a group. As the program expands, team training should be provided to all new personnel, regardless of their position in the program. Team training is available through your local Total Quality (TQ) office.

f. TRAPS:

(1) *Lack of Planning/Management Focus* - All too often project planning is completed and agreement is sought with the lead MAJCOM as a square-filling exercise. This typically leads to low quality plans. Because of this, the planning documents are ignored by management and project participants. The value of documents like the Memorandum of Agreement (MOA), Master Plan, and Master Schedule is that they provide management and project participants with documented and appropriately coordinated information regarding program direction, how the activities will be orchestrated to meet that direction, and the baselined schedule agreed to for implementing the plans. Planning is necessary to provide both management and program participants with information critical to identifying and successfully executing their assigned program responsibilities.

(2) *Use of Model Schedules* - Just as model schedules can help reduce workload, they can also increase the risk of omission of critical tasks for the current activity, or the carryover of previous mistakes. The IPT should only use the model schedule as a starting point, and tailor to meet their needs. The IPT must still do a thorough review to ensure the tasks suggested by the model schedule are complete, meet their assigned objectives, and don't have hidden problems.

12. IMPLEMENTATION TOOLS:

a. *ASC/YX Program Development Process Products* - ASC/YX has developed several tailorable products that will help acquisition teams develop pre-milestone I plans and strategies. For copies of any of the following, contact ASC/YXDP, DSN 785-1847.

(1) *Pre-Milestone I Process Flow Charts* - These flow charts provide a pictorial view of the overall acquisition management process through the Milestone I decision. Process tasks and interfaces with other each other are identified as well as who has the responsibility for ensuring task completion.

(2) *Pre-Milestone I Process Checklist* - This checklist organizes the tasks displayed by the process flow charts into a tailorable work breakdown structure format for use by project teams developing Phase 0 plans. The checklist supports more detailed definition of tasks than is provided by the process flow.

(3) *Program Development Process Guide* - This process guide documents the Pre Milestone I program development process. It provides narrative descriptions of the Pre Milestone I tasks. These descriptions are both broad based, covering an overall view of pre-milestone I acquisition, and detailed, covering each of the tasks typically required to be accomplished to achieve a Milestone I decision. The detailed task descriptions provide information on the following for each of the Pre Milestone I tasks identified:

- Description of the Activity
- Owner(s) and Stakeholder(s)
- Purpose and Objective(s)
- Requirement(s) and References
- Entrance and Exit Criteria
- Key Inputs and Outputs
- Available Implementation Tools
- Planning Guidance
  - Task Duration
  - Constraints
  - Resources
  - Lessons Learned
  - Best Practices
  - Traps

b. *Air Force Acquisition Model (AFAM)* - The AFAM software is an AFMC managed, PC-based, acquisition management tool that is designed to provide acquisition managers with a description of the basic system acquisition process, down to a practical level of definition. Information can be accessed related to task descriptions, references, lessons learned, best practices, nominal timelines, etc. The

descriptions of the acquisition tasks are based upon a functional decomposition of the acquisition process known as a task breakdown structure (TBS). The AFAM software is available at no charge to requesting Government organizations. For more information, or to request a copy of the software, contact ASC/CYM, DSN 785-0418.

c. *Lessons Learned Database* - Air Force acquisition personnel can gain access to a large database of acquisition lessons learned through the PC-based "Automated Lessons Learned Capture and Retrieval System (ALLCARS)" software. The database this software draws from is supported by the Air Force, the Army, the Navy, and the Marine Corps. For more information contact ASC/CYML, DSN 785-3454.

d. *Scheduling Methodologies and Software*

(1) Either of the following government references will provide sufficient insight to network analysis and other common scheduling methodologies that have gained wide acceptance within the government and business communities:

· "Scheduling Guide for Program Managers," Defense Systems Management College (DSMC), Jan 90
· "Program Control Handbook - Volume III Schedulir ESC/FMBP, Nov 88

(2) There are many inexpensive computer software packages available for developing and/or tracking project tasks and schedules. Listed below are some of the packages known to be in use at ASC. For just about any activity that occurs Pre Milestone 0 or Pre Milestone I, any of the following should suffice:

Product	***Platform(s)***	***Company***
· Microsoft Project*	DOS, Windows, Mac	Microsoft Corporation
· CA Super Project	DOS, Windows	Computer Associates
· Timeline	DOS, Windows	Symantec
· Harvard Project Manager	DOS, Windows	Ashton-Tate
· CSNAS	DOS, VAX	ASC/ALLB (FREE S/W and Training)
· MacProject	Mac	Claris
· Open Plan	DBASE	Welcome Software

* The trend at ASC seems to be toward standardization on Microsoft Project.

(3) If your software needs cannot be met by any of the above products, Patricia Sedlak, ASC/SMPB, and Wendy Fleisher, ASC/YCPFB, have developed a methodology for selecting project management/scheduling software. This methodology is documented in an unpublished report entitled, "A Project Management Scheduling Software Selection Methodology," 16 Sep 92. Copies of this report are available through ASC/FMCS, Scheduling Branch, DSN 785-6101.

1. **ELEMENT:** D20B, TBS 1.1.1.3 (IFC 93-3)

2. **TITLE:** Draft Technical Plans (AFMC Centers)

3. **ELEMENT OWNER(S):** Project Cadre; Product Center Development Planning (XR & YX @ ASC)

4. **ELEMENT STAKEHOLDER(S):**

   a. Implementing and Operating Commands
   b. Air Staff (USAF/XO & SAF/AQ)
   c. Air Force Material Command (AFMC) /XR & ST
   d. Product & Logistic Centers (PC/ALCs)
   e. Laboratories
   f. Intelligence Agencies
   g. Industry

5. **REQUIREMENT:**

   a. DODI 5000.2, Defense Acquisition Management (DAM) Policies & Procedures, Jan 91:
      (1) Part 4, Requirements Evolution and Affordability, Sections A & B, and
      (2) Part 11, Program Control and Review, Sections C, D & E, Review plans, procedures and reports;

   b. DOD 5000.2-M, DAM Documentation & Reports, Feb 91, Part 1 & following, Procedures and formats for use in preparations for milestones, reviews and other key decision activities.

   c. AF Sup 1/DODI 5000.2, DAM Policies & Procedures, Sep 92, Parts 4 - 9, Description of the system acquisition process for Air Force programs, covering cradle to grave aspects.

   d. AFI 10-601, Mission Needs & Operational Requirements Guidance & Procedures, Feb 93, Instruction for developing & processing AF mission needs and operational requirements;

   e. MIL-STD-499B, Systems Engineering, Draft May 92, Section 3.8, Systems Engineering Process.

6. **PURPOSE/OBJECTIVE(S):**

   a. Purpose: To prepare preliminary technical plans for Phase 0 in support of the Operating Command.

   b. Objective(s): To ensure the System Engineering & Configuration Management (SE/CM) philosophy is incorporated into the process and to complete the following tasks in support of the PC/ALC Phase 0 planning activities:

      (1) Identify, by functional discipline, preliminary Phase 0 technical tasks (for both government and potential contractors) and their interfaces;
         (a) Traditional Engineering (such as electronics, thermodynamics, aerodynamic, etc.).
         (b) Specialty Engineering (such as Logistics, Maintenance, Human Factors, etc;.).
         (c) Test Engineering.
         (e) Studies and Analyses.
         (f) Security.

      (2) Initiate or update technical plans development for.
         (a) Government-level Systems Engineering Master Plan (SEMP) outline.
         (b) Program Protection Plan (PPP).
         (c) Logistics Support Analysis (LSA) Strategy.

(3) Identify additional specific working groups to initiate development of.
(a) the Baseline Concept Descriptions (BCDs).
(b) strawman System Requirements Document (SRD).
(c) strawman System Engineering Master Schedule (SEMS).

7. DESCRIPTION:

These preliminary plans for the anticipated Phase 0 efforts are complementary to the plans being defined for the overall programmatic aspects (D20A) and are to be used by the Operating Command in completing their overall draft Phase 0 plans (C14). The scope of the activity at this stage is to establish a reasonably accurate technical framework for the tasks and other activities that should start or continue after a positive MS 0 decision.

It is anticipated that these preliminary plans will be reviewed for updates after the MS 0 approval, with the primary objective at this point being to provide a complete outlook of the technical needs and activities to be covered during a Phase 0 effort. Some of the technical activities will extend or build upon the preliminary developments through this point in the overall effort (D15, D29, D30). Contracting strategies need to be identified and outlined in order to feed the Operating Command's overall strategy developments (D34). An important aspect of this strategy is the identification of any Government Furnished Equipment (GFE) that would be targeted for the Phase 0 efforts. Work statement drafts should be defined that cover both in-house (government) and contracted activities. This step will streamline the efforts to update plans following a positive MS 0 decision. Other functional plans should either be drafted or updated in preparation for the Phase 0 effort. A key development for the technical area is defining a strawman Systems Engineering Management Plan (SEMP). This will become the overall guidance for the project team's technical activities. The SEMP should show a fully integrated engineering effort, with the organization, direction and check-points for the Phase 0 activities. Coordination among the stakeholders is very important to ensure consistent perspectives, understandings, and commitments for the goals, objectives, resources, and schedule.

8. ENTRANCE AND EXIT CRITERIA:

a. Entrance: Initiation occurs when the Operating Command has achieved a validated MNS and has decided that an approval will be sought (MS 0) to pursue the development of a more detailed acquisition position.

b. Exit: The activity is concluded when the Operating Command determines that a complete MS 0 decision support package has been developed.

9. KEY INPUTS AND OUTPUTS:

a. Key Inputs:

(1) Support to the Draft Phase 0 planning being provided to the Operating Command (D20A) -- developed in close coordination between the programmatic and technical aspects of a Phase 0 effort.

(2) Access to the Project Database (D15) for technical details and decision(s) -- defining the technical areas to be addressed in Phase 0 will depend on a consistent extension from details developed in earlier activities. The database is a key repository of the information that is both needed and developed by analyses and simulations.

(3) Contract strategy interfaces.

(4) Laboratories & Industry Interfaces -- these two information and resource areas are an important aspect of the activities dealing with identifying and developing descriptions of potential system concepts.

b. Key Outputs:

(1) Draft Work Statements - (D20A & D34) -- the PC/ALC identifies all (technical) activities that will be required to successfully accomplish Phase 0 objectives. These cover both government and industry tasks, along with the timeframe of their execution. Coordination with the Operating Command's draft plans (C14) is important.

(2) Draft Functional Plans - (D23)

(a) Outline for the SEMS (Systems Engineering Master Schedule).

(b) Strawman SEMP (Systems Engineering Management Plan).

(c) Initial ILSP (Integrated Logistics Support Plan) - outlines proposed supportability objectives for the alternatives.

(d) Updated LSA (Logistics Support Analysis) Strategy - identifies tasks and subtasks to be performed.

(e) Outline for Test & Evaluation Master Plan (TEMP).

(f) Strawman PPP (Program Protection Plan).

(3) Strawman BCD (Baseline Concept Description) - (D23).

(4) Identify needed technical working groups - (D23).

10. KEY REFERENCES:

In addition to Item 5. Requirements --

a. AFPD 10-6, Operational Requirements, Jan 93, Policy directive for implementing the mission needs and operational requirements developments.

b. DSMC, Systems Engineering Management Guide, Jan 91, describes systems engineering concepts and techniques.

c. MIL-STD-1388-1A, Logistic Support Analysis (LSA), Apr 83, provides general requirements and task descriptions for performance of LSA.

d. MIL-HNBK-499-3, System Engineering / Configuration Management (SE/CM) - Life Cycle Application, Draft Aug 92.

11. IMPLEMENTATION TOOLS:

a. ASC/YX Program Development Process Product; these include a process flow chart, a process checklist and a process guide (see D20), Sep 93.

b. Air Force Acquisition Model (AFAM); an AFMC managed acquisition tool.

c. MIL-HNBK 499-3; process guide.

d. Outline from AFR 800-3, Acquisition Management, Engineering for Defense Systems, 17 Jun 77

e. LSA Users Guide, Mar 89.

12. PLANNING GUIDANCE:

a. DURATION: This planning preparation activity will typically take 1 -2 months for a full system deficiency or 2 - 3 weeks for a major subsystem or component. This assumes that some

groundwork has been laid for these plans during the execution of previous activities. Aspects that could lengthen the timeframe include number of organizations involved, particularly across PC/ALCs, joint service or international involvements, and political sensitivities.

b. CONSTRAINTS: Priority assigned by the Operating Command for the planned Phase 0 will directly influence the level of effort devoted to and covered by the preliminary plans. Also, funding and support constraints will affect the LSA/ILS strategy.

c. RESOURCES: Typically 10-12 persons for a full system assessment and 3-5 for a major subsystem or component. This activity is preferably performed by an integrated product team, involving all principle stakeholders and/or potential participants of Phase 0.

d. LESSONS LEARNED:

(1) The technical planning activities should consider the synergy from cooperative government and industry efforts for Phase 0. Often, the government resources and capabilities can be complemented by those available through contracted efforts. This adds additional emphasis on maintaining close ties to industry to allow effective interfaces at key points in the overall developments.

(2) The technical OPR should look for active participation from all team members. Particular attention should be given to those functional areas that have direct connection to the type of need being addressed. This is not just a passive exercise; the team members should be effectively "committing" the identified resources as pertinent.

(3) During this important step to a MS 0 decision, it is crucial that the planning team maintain continual communications with the Operating Command. The approach used throughout AFMC is to utilize the SYSREP (AFMC representative physically located at the MAJCOM, usually with the Plans and Programs or Requirements offices, i.e. /XP or /DR) as a means of keeping the information exchange a dynamic process.

e. BEST PRACTICES:

(1) The preferred approach to achieving a "seamless" transition from Pre-MS 0 to Post-MS 0 (Phase 0) is through a core IPT. This will allow for a more consistent perspective being maintained and will ensure minimal loss of key information during the transition. Accepting the fact that some turnover will always occur, documentation becomes very important (see D15).

(2) Attention should be given to keeping the most important (key) functional area representatives as members of the IPT. Corporate memory is not easily recovered or reconstructed, even with documentation.

(3) It is important to periodically review the original factors that evolved during the development of the MNS. This is the main driver ... the search for alternative solutions to a mission deficiency or need.

f. TRAPS:

(1) It is difficult to identify the point where planning is complete. Often, there is a tendency to define the intial plans in great detail and leave the rest "fuzzy." The plans should carry the process all the way to and through the MS 1 decision point.

(2) External influences can have an affect on the plans at this stage. Preliminary plans for Phase 0 should emphasize maintaining an open and broad perspective for evaluating potential alternatives. When pre-conceived notions about the "right" solution are allowed to enter the process, they often will result in a very narrowly scoped effort; one that quickly focuses on the "right" solution.

(3) With the lack of formal reviews and approvals, the preliminary plans could have included dependencies or made reference to resources that may or may not be available during Phase 0 execution. The project leader(s) should enforce an approach that obtains preliminary commitments that resources will be available and at the proper time.

(4) Small project teams with limited representation are often faced (knowingly or not) with having to pursue activities that are totally supported through contracted efforts. Too often this is the preferred choice, even when there are adequate resources available to effectively organize an in-house team. It is vitally important that the IPT exercise this planning function fully and seriously address the concept of an in-house team paralleling the efforts performed by industry.

(5) Developing the ILS/LSA strategy without a valid support concept from the Operating Command will limit identification of support factors and tasks.

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1. ELEMENT: D21, TBS 1.1.2.0 (IFC 93-3)

2. ELEMENT TITLE: Assign Lead and Support Centers (HQ AFMC)

3. ELEMENT OWNER(S): HQ AFMC/XP

4. ELEMENT STAKEHOLDER(S):

- o All Product and Logistic Centers
- o Functional Home Offices
- o Center XRs and ASC/YX
- o System Product Offices
- o All AFMC Laboratories
- o All Test Centers
- o All Single Managers

5. REQUIREMENT: Draft Policy Directive entitled: AFMCCPD XX-XX, AFMC Mission Assignment Process and the accompanying draft Mission Planning Instruction for the Mission Assignment Process. (Both of these documents are in their early stages of evolution, the draft is dated 10 Feb 93 and does not yet have a Policy Directive numerical identifier.) When finalized, this Policy Directive and its attached Mission Planning Instruction will **supersede** the following:

AFMCR 523-1	Mission Assignment Policy	18 Jun 91
AFMCR 523-3	AFMC Mission Assignments	24 Jan 90
HQ OI 523-1	Notification of AFMC Mission Assignments and Reassignments	24 Jul 90
HQ OI 523-2	Headquarters AFMC Mission Assignment Source Selection Process	17 Jul 89

6. PURPOSE and OBJECTIVES:

a. PURPOSE: The AFMC Mission Assignment Process was established to ensure all the taskings which come into the command are accomplished by the most capable and qualified organization.

b. OBJECTIVES: The overall objective of establishing and institutionalizing the AFMC Mission Assignment process is to ensure we do our best to satisfy our customers by providing quality service, quality products, timely response to customer needs and best value to the customer and the command by using our most qualified and appropriate resources. These objectives are driving forces the command wants to capture through the application of the Mission Assignment Factors.

7. DESCRIPTION: The AFMC Mission Assignment Process is the first major action taken by HQ AFMC following the release of the Program Management Directive (PMD) by Air Staff (B10). The PMD gets the ball rolling by including the phrase "AFMC shall...". With such a tasking in hand, AFMC/XP then makes mission assignments to the appropriate center based on a set of objectively measurable criteria including areas concerning:

a. customer requirements,
b. technical characteristics of the proposed assignment,
c. the present and future posture of the command,
d. the overall needs of the Air Force and DoD.

It is important to remember that this is an AFMC process, it does not apply to assignments of or to single program managers (these are handled through the PEO/DAC chain of command), or to mission assignments within a particular laboratory or center which are handled by the respective commander. At ASC, the ASC/CC makes the work assignments within the center through the Review New Work Process (D78).
The Mission Assignment Process is applicable to:

a. initial assignments, realignments, and rescissions of AFMC management responsibilities for:

weapon systems
support systems
technology groupings
Federal Supply Classification (FSC) items
special programs
and special projects

b. and initial source of repair (SOR) for major systems and engines.

The assignments made at this level deal primarily with the manner in which the AFMC infrastructure provides resources and capabilities to the single managers and other external customers and allows their management processes to operate.

In order to ensure efficiency and responsiveness in the mission assignment process, AFMC has divided the various types of taskings or work which come into the command into three categories.

Category I assignments are those taskings which are non-Program Management Directive (PMD) generated. They originate with the customer, who takes the task directly to the center that the customer feels is the best qualified to do the work. Basically, Category I taskings by-pass the entire AFMC mission assignment process.

A *hypothetical* example may help. Let's assume Air Combat Command (ACC) has walked through their mission area assessment (MAA) (IFC Blk #C1) and preliminary mission need analysis (MNA)(IFC Blk #C3) using the strategy-to-task technique. They discover there may be a shortfall in their ability to destroy relocatable targets such as SCUDs. Armed with this information, ACC comes to ASC/XR requesting them to do further analysis on this potential shortfall and to discover, if possible, what areas pertaining to SCUD Killing are deficient, (i.e. Mission Need Analysis). ASC/XR runs an entire battery of analytical excursions using a variety of models. They assess the tactics employed, the airframes tasked with this mission, types and numbers of weapons used, availability of intelligence, etc.

At the same time all this is going on between ACC and ASC, Space Command discovers the same shortfall in their own MAA. In Space Command's shortfall, they think their deficiency lies in their inability to direct a laser energy weapon against a detected SCUD launch point. Space Command engages the services of SMC/XR to accomplish the MNA activities and provide the detailed analysis which show what specific areas in the Space Command's SCUD Killing mission are deficient. SMC/XR's initial analysis hints that the most efficient way to kill SCUDs might not necessarily be from a satellite platform. In order to explore this possibility SMC employs the services of ESC/XR. ESC will do preliminary analysis on the possibility of improving the Communication links with more earthbound strikers such as tanks, surface-to-surface missiles, orbiting aircraft etc.

In this *hypothetical* example, three significant taskings were created, assigned, and accomplished totally outside the AFMC Mission Assignment Process. This is the norm in Pre-Milestone 0 activities. AFMC/XP has no wish to interfere with this practice, without a PMD or some other kind of higher headquarters tasking document; the AFMC Mission Assignment

Process is not a player. Other types of taskings which would fall into Category I would be things like: Military Interdepartmental Purchase Requests (MIPRs), another service request for work which is provided directly to specific Test Center with previously assigned responsibility for that type of test activity, etc.

Category II assignments are generally those taskings resulting from PMD revisions in which similar, related, or follow-on work is directed to a single manager. Category II tasks, like the Category I tasks, already have the management infrastructure in place. The difference here is that Category II tasks operate under a dual management infrastructure. The single manager's infrastructure operates within the acquisition chain of command and in conjunction with the AFMC infrastructure. AFMC is to provide the single manager (along with other internal and external customers) with the resources and capabilities which might currently be lacking in the single manager's operation. If the single manager already has all the assets he needs to complete this new tasking, then AFMC is out of the picture.

Again a *hypothetical* example might make this a little easier to understand. Assume that Wright Laboratory discovers an electronic device which when installed in the avionics suite of a B-1B renders the entire air vehicle as stealthy as a B-2. The concept is reviewed by ACC; they like it and they want it installed on their entire B-1B fleet. The B-1B Program Element Monitor manages to get the B-1B PMD amended to include the integration of the new miracle "cloaking device." Along with the amended PMD comes $100M to install and integrate the devices into the B-1B avionics suite. The devices themselves will be produced by the lab and provided as GFE. The Single Manager for the B-1B would receive this update to the PMD. In order to assess his ability to accomplish this task, he might form an Integrated Product Team (IPT) to research the task and the resources required to complete it. The IPT completes their effort and determines that they will need some assistance from ASC/EN for more avionics engineers, as well as a whole host of folks from the other functional home offices as well. This would be a tasking internal to ASC's structure (Category I type) and would still not require AFMC's involvement. The IPT, however, had no idea as to who would be the best Center for performing the depot level maintenance on the "cloaking devices"-- now the AFMC Mission Assignment kicks in. (If the IPT had determined that Oklahoma City ALC would do the depot work on the boxes and the single manager would have tasked them to do so, AFMC might still have become involved if Oklahoma City would have told the single manager they were unable to accomplish the new tasking and referred the work back. In this case, the single manager should contact the appropriate HQ AFMC functional organization.) At this point AFMC has an several of options to pursue including making a new mission assignment through the Category III assignment process.

Category III assignments are the New Mission assignments and generally arrive on AFMC's doorstep via a new PMD. Other less common sources of new mission taskings include the Operational Requirements Document (ORD), other formal requests, or as a result of *Internal management processes.* New assignments include activities for a new program, technology, federal stock class and/or any other new form of workload tasked to AFMC for development, testing, program management, and/or support. Major mission reassignments and those taskings spilling from the Category II example above are also included in this category. Category III assignments are those which normally come to mind when you think about the Mission Assignment process.

- EXAMPLES: A couple of last examples should bring home the differences in the three categories. First, the easy one, ACC in conjunction with ASC/XR has completed the MNA for shortfall in the multirole fighter force. The initial analysis showed a serious deficiency starting in the year 2010. ACC drafts and staffs a Mission Needs Statement (MNS) to explore various concepts which could solve this deficiency. The MNS works it way to the Joint Requirements Oversight Council (JROC) where the need is validated. The JROC attaches their assessment of the need and forwards the package to the Defense Acquisition Board (DAB) for the Milestone 0 review. A favorable review results in an Acquisition Decision Memorandum (ADM) which is converted into a PMD by the Air

Staff. This PMD tasks AFMC to conduct Concept Exploration and Definition (CE&D) activities necessary to develop a solution set to resolve the deficiency in the current multirole force. In this example the center best capable of handling this tasking would be ASC since they are the aircraft developers. After receiving the PMD, AFMC/XP would review the task and, in this case, send direct to the ASC/CC where it would enter into the ASC New Work Review Process (IFC Blk # D78) for internal assignment. The three categories of tasks and their flows to the appropriate centers is depicted in the following top level chart Figure D-21.1:

Figure D-21.1 AFMC Mission Assignment Process

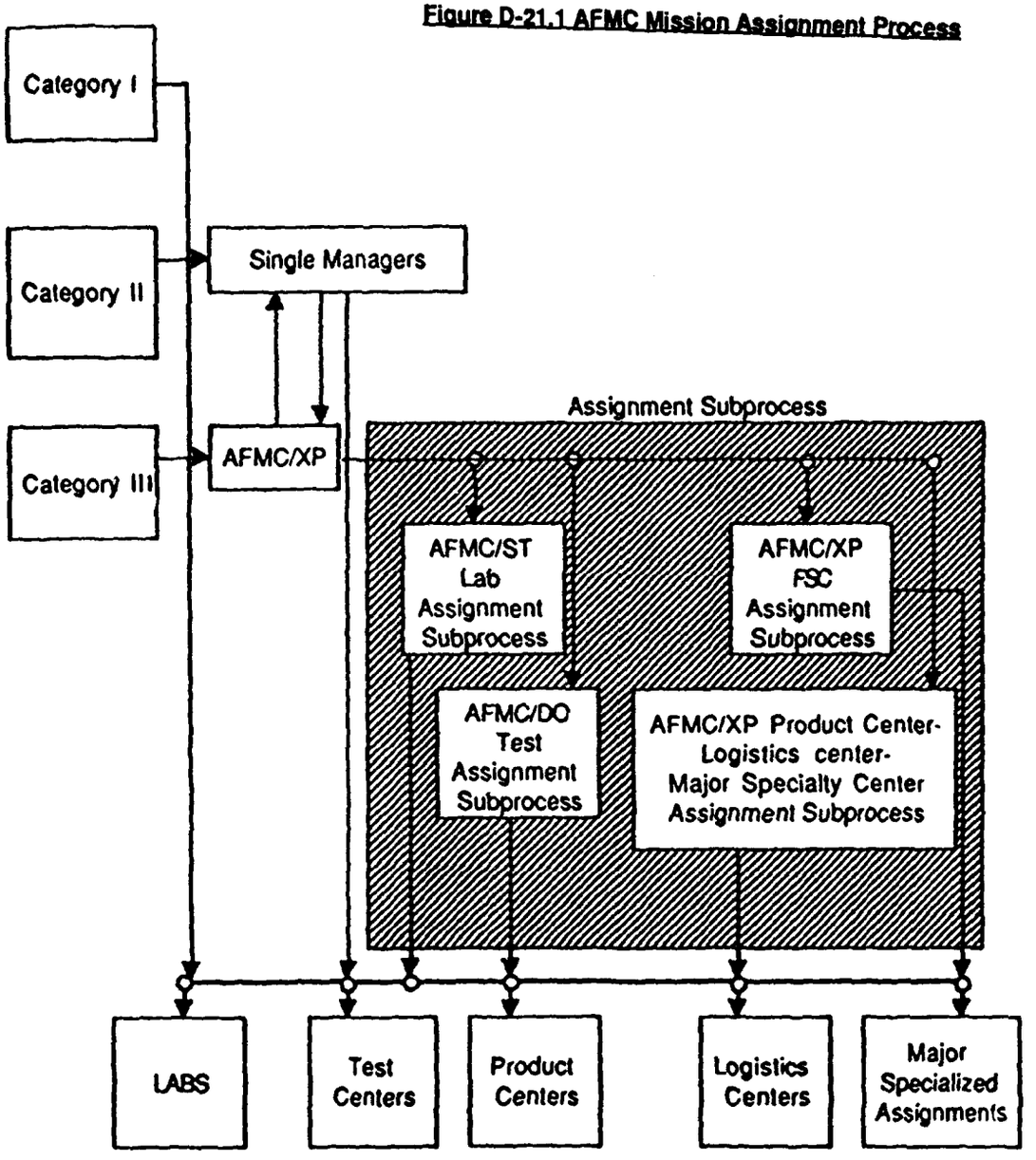
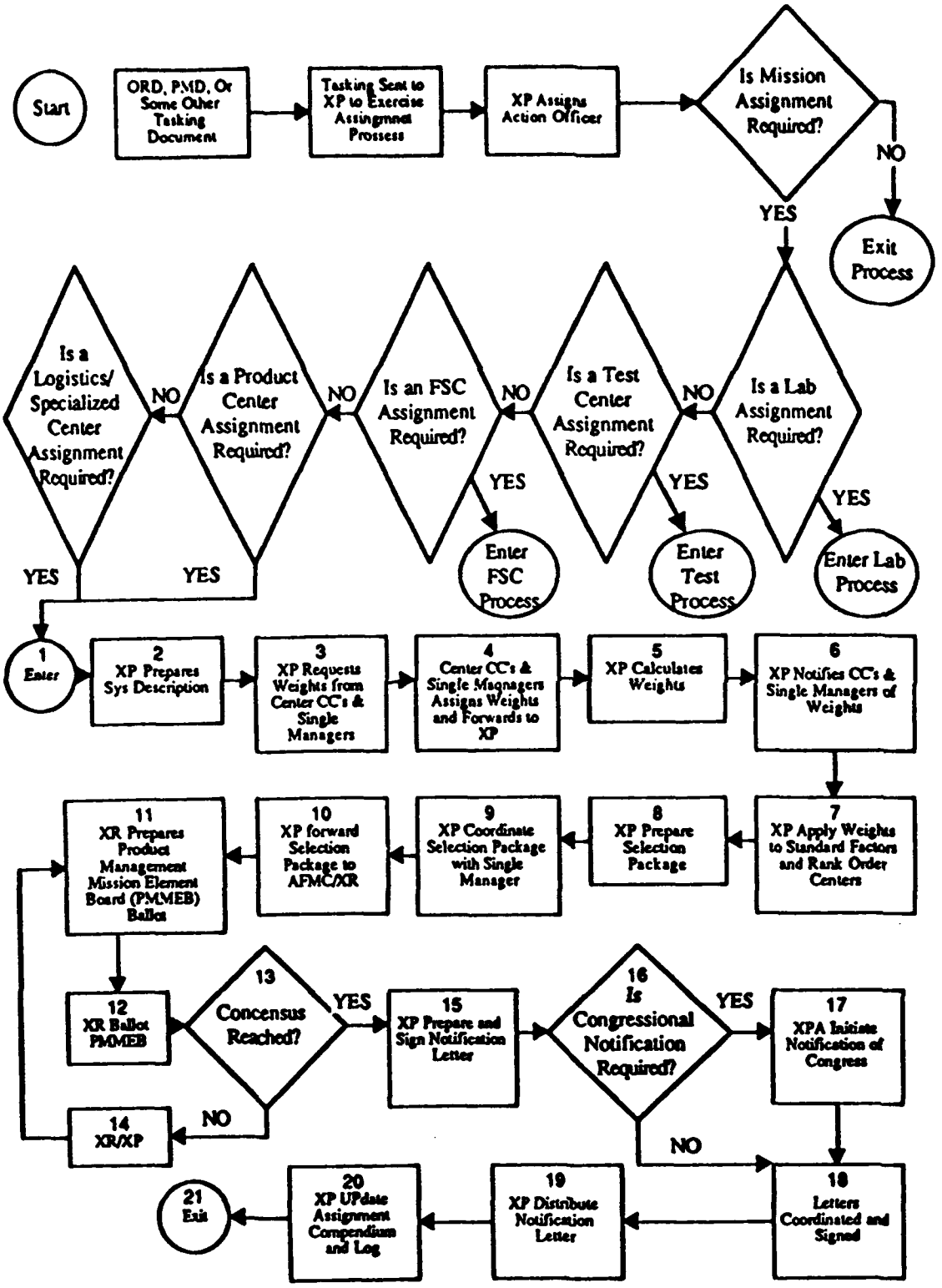


Figure D-21.2 Mission Assignment Process Subflow



The second example is not nearly as cut-and-dried as the first. Let's assume the multirole forces CE&D activities from the previous example result in a new aircraft program, the F-XX. The PMD from that Milestone II decision directs AFMC to provide Logistical and Depot Level Support for the future F-XX. IN this case, the Center to receive this tasking is not nearly as clear-cut. Should it be Sacramento because they have the most experience working with composite type airframes or should it be Oklahoma City? Why not Hill, since they have the most experience with previous multirole aircraft? What if Robbins has the most facilities and manpower available to handle such a large task?

An even better example would be a derivative of the National AeroSpace Plane (NASP)? It is part airplane (ASC's home turf) and part space system (SMC's kingdom). To resolve this issue, AFMC/XP runs through the flow .

The details for each of the 21 boxes (Figure D-21.2) ,as well as, the activity flows for the Labs, FSC, and Test mission assignment sub-process flows can be found in the 10 Feb 93 draft of the Mission Planning Instruction for the AFMC Mission Assignment Process

Once the PMD (or other tasking element) is received, an action officer is assigned to determine project validity as a Category III tasking. In our example it is, so the action officer runs the diamond gauntlet and determines the task should go to one of the logistic centers, so he enters the task into the logistic center mission assignment sub process. The Center CCs and single managers review the task and assign a series of multiplying weights to be applied against each of the standard measurement factors. For example, if the task were to select the logistics support for a B-3 bomber, then facilities might be a highly weighted item or in our example if the F-XX were a "thermoplastic" jet then technical experience with composite materials would be a big player. The individual centers are objectively measured against each of the factors. AFMC/XPX will then assemble the results and put together a Recommended Assignment Package for review and approval by the Program Management Mission Element Board (PMMEB). The winner is then notified of the results. If all goes according to the book, the most capable logistics center should now be in charge of all F-XX support operations.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance into this process occurs with the receipt of the Milestone 0 PMD from HQ AF/XOR (IFC block #B10).

b. Exit criteria have been met when AFMC/XP assigns the new mission task to one of the command's centers of excellence for execution. In the case of ASC, the task will enter into the ASC New Work Review process for internal allocation (IFC block #D78).

9. KEY INPUTS AND OUTPUTS:

a. Key Input is the tasking document which is normally the PMD (IFC block #B10). Taskings may also come from ORDs (although this is not common because it is a result of a totally unforseen requirement that sneaks it into the ORD), verbal requests, or some AFMC internal realignment activity and the resulting documentation.

b. The key output is the New Mission Assignment Notification Letter (Letter of Assignment) to the center awarded the new mission and possibly a notification package to Congress explaining the rationale for the decision.

10. KEY REFERENCES:

a. Draft Policy Directive entitled: AFMCCPD XX-XX, AFMC Mission Assignment Process and the accompanying draft.

b. Mission Planning Instruction for the Mission Assignment Process. (Both of these documents are in their early stages of evolution, the draft is dated 10 Feb 93 and does not yet have a Policy Directive numerical identifier.)

11. IMPLEMENTATION TOOLS: Each of the center sub process activity flows are included in the above reference documents along with a very brief description of each of the activity blocks. At the present time, this is the extent of the mission assignment tool set. A mission Assignment Process Action Team (MAPAT) has been working this topic since Oct 92 and is expected to complete its activities early summer 93. The team's findings are to be presented at the 93 Summer Horizon Conference.

12. PLANNING GUIDANCE:

a. DURATION: Regardless of acquisition category, the mission assignment process must be completed in no more than 28 days. This is the time required by Air Staff to respond to the PMD. Strategic planers would be wise to allow for the full 28 days for tasks where center competition is likely (as in our second Category III example). For tasks that are relatively clear cut, plan for half that time.

b. CONSTRAINTS: The constraints to being awarded new work tasks are basically the organization's ability to fully satisfy the factors being considered for the task. The factors are generally the same for all tasks, but the weighted multipliers change given the unique characteristics of the task being considered. Again, see the 10 Feb 93 draft of the Mission Planning Instruction for the AFMC Mission Assignment Process for a complete listing of these factors.

c. RESOURCES: Basically the only resources required to accomplish the Mission Assignment Process are the total availability of one AFMC/XPX action officer for 30 days and the availability of all the center CCs (or designated representatives) for a 1-day Program Management Mission Element Board (PMMEB). In order for a center to win a new work assignment, resource availability will be a key factor.

d. LESSONS LEARNED: None identified.

e. BEST PRACTICES: Given the relatively quick turn-around time (by acquisition time scales), it is a good idea for individual organizations to have a ready assessment of their excess capabilities. If your center wants to compete for a piece of new work, they will likely pulse each of their individual organizations to determine their net capability to handle the new task.

f. TRAPS: In regards to the above best practice, do not over estimate. Should you be awarded a new work assignment based on an over inflated estimate of your capability, the result could be much worse than not getting the assignment at all. It has happened before and will likely happen again. Don't bite off more than you can chew. A failure to perform a task due to over estimate in capability could jeopardize the center's credibility in future new work assignments (past performance is one of the measurement factors).

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1. ELEMENT: D22, TBS 1.1.4.2 (IFC 93-3)

2. ELEMENT TITLE: Update Phase 0 Plans (AFMC Centers)

3. ELEMENT OWNER(S): Assigned AFMC Product Center (PC) and/or Air Logistics Center (ALC) Integrated Product Team (IPT). Typically, Phase 0 systems acquisition activities will be assigned to a PC, with very limited ALC support through Milestone I. ALC assignments will be more pervasive with development activities associated with modifications to fielded systems.

4. ELEMENT STAKEHOLDER(S):

- Air Staff (USAF/XOR/TEP/INX, SAF/AQX/FMC)
- Operating Commands
- Air Force Materiel Command (AFMC/CC, XR)
- AFMC Product and Air Logistics Centers (PCs/ALCs)

5. REQUIREMENT:

- AF Regulation 800-1, 16 Feb 90, "Air Force Acquisition System," paragraph 5.c, identifies the acquisition management responsibilities of Air Force acquisition managers.

- AF Instruction 10-601, 1 Oct 92, "Mission Needs and Operational Requirements Guidance and Procedures," Attachment 2, identifies the Major Command (MAJCOM) and Field Operating Agency (FOA) pre-Milestone I responsibilities.

6. PURPOSE/OBJECTIVES:

a. Purpose: To complete Phase 0 planning and organize to execute the Milestone Decision Authority (MDA) Phase 0 direction as provided through the Program Management Directive (PMD) and the lead MAJCOM as assigned by the PMD.

b. Objective(s):

(1) *Phase 0 Plans Approval* - After updating the Phase 0 plans to account for PMD direction, the IPT should obtain appropriate approval(s) before executing the plans. The appropriate level(s) of approval will depend on the significance of the activity and should be identified by the lead MAJCOM.

(2) *Establish Required/Desired Steering and Working Groups* - The IPT may be directed by the lead MAJCOM, or may want, to establish some steering or working groups to help direct, manage, or execute some of the PC/ALC assigned Phase 0 responsibilities. Some examples of groups the IPT might establish during Phase 0 are the Test Planning Working Group (TPWG), Threat Working Group (TWG), Supportability Working Group (SWG), and the Computer Resources Working Group (CRWG). See D23 for more information on these and other groups.

7. DESCRIPTION:

a. *Updating the Phase 0 Plans* - Upon the completion of the Milestone 0 reviews and MDA approval of concept study efforts, the MDA issues an ADM (see A9 and B9). After receipt of the ADM, USAF/XOR completes and issues the Phase 0 PMD (see B10). The lead MAJCOM must ensure the previously developed Phase 0 plans (see C14, D20A, and D20B) satisfy the direction provided by the ADM and the PMD, as issued. If the IPT was actively involved through the lead MAJCOM with the drafting of the ADM and PMD, and proactive at addressing issues raised throughout the milestone review process, there should be no surprises regarding the content of either document. In this case, the draft

plans developed during the milestone review process should need little or no modification and may be ready for immediate implementation. After any needed modifications have been completed, final coordination is obtained from all participating organizations, and final approval of the plans is made by the appropriate approval authority, as established by the lead MAJCOM.

Upon final approval, the plans are baselined and used by the PC/ALC and all supporting organizations as the basis for executing and controlling assigned Phase 0 activities. Given PC/ALC Commander go ahead (see D79), the IPT will begin to execute the tasks in the manner approved by the plans. Throughout the execution of Phase 0, changes in direction, strategy, resources, etc., must be monitored and evaluated by the IPT and appropriate participating organizations for their impact to the baseline plans. For significant changes, the plans may need to be reworked, recoordinated and approved, and then rebaselined.

b. *Establishing Steering and Working Groups* - During the milestone review process, the IPT should have begun organizing the resources needed to achieve the PC/ALC assigned Phase 0 objectives. This activity includes the identification and establishment of any desired or required steering and/or working groups. Steering and working groups are one-time, periodic, or on-going activities which pull together appropriate management and/or technical expertise to direct, assist, guide, or execute an assigned task. Steering groups are typically formed to provide management oversight, guidance, advice, or approval authority for specified activities. Working groups are typically formed to manage and execute a specified task. Any number of these groups may be formed at IPTs discretion to support their accomplishment of assigned Phase 0 responsibilities; however, some groups may be directed by the PMD or other authority. See D23 for some examples of technical working groups typically established at the PC/ALC level.

8. ENTRANCE AND EXIT CRITERIA:

a. Entrance Criteria

Concept Studies Approval - When the Milestone Decision Authority (MDA) is satisfied with the MNS and any requested Phase 0 planning information, approval is given to proceed with Phase 0 concept studies. The MDA will issue an ADM, and AF/XOR will issue a PMD. After receiving these documents the lead MAJCOM will update Air Force Phase 0 plans as required to bring them in line with the guidance provided by the ADM and PMD. The PC/ALC will update their plans and forward them to the lead MAJCOM for review and approval, and inclusion in the Air Force plans, as appropriate.

b. Exit Criteria

(1) *Phase 0 Plans Updated and Approved* - After receiving the PMD, the lead MAJCOM will ensure all Air Force Phase 0 plans, including those developed by the PC/ALC, are updated as required to bring them in line with the direction provided by the ADM and PMD. Once final approval is made by the designated approval authority, the plans are baselined and then executed.

(2) *Steering and Working Groups Established* - If the PC/ALC approved Phase 0 plans identify the need or desire for any management or technical support groups, charters should be drawn up and approved by the PC/ALC to formally establish them.

9. KEY INPUTS AND OUTPUTS:

a. Key Inputs

(1) *Program Management Directive (PMD) (see B10)* - The PMD is the official Air Force document used to direct acquisition or modification responsibilities to appropriate Air Force MAJCOMs for the development, acquisition, or modification of a specific weapon, subsystem, or piece of

equipment. The Phase 0 PMD is issued by USAF/XOR and will minimally accomplish the following for Phase 0:

- Designate the lead MAJCOM.
- Identify and direct all participating organizations.
- Identify the MAJCOM responsible for establishing the CAG (if required) and for leading the concept studies.
- Identify funding sources and approved study alternatives.
- Briefly address the purpose, study requirements, required documentation, and schedule considerations for the Milestone I (MS I) decision.
- Establish Air Staff, SAF, Joint Staff, and OSD review and coordination procedures for an MS I decision.

The Phase 0 PMD will incorporate and expand on the direction provided by the ADM. It is required by the lead MAJCOM and other participating organizations to identify the funding source and amount and justify the further expenditure of resources for the planned Phase 0 activities.

(2) *Draft Phase 0 Plans (see C14, D20A, and D20B)* - These are the draft plans developed by the lead MAJCOM and the PC/ALC prior to the milestone decision. These plans provide the following information that must be updated to account for PMD direction:

- Phase 0 purpose, objectives, constraints, and assumptions.
- The proposed strategy and organization for accomplishing assigned Phase 0 responsibilities.
- Identification of all tasks required to complete assigned Phase 0 objectives.
- Schedule estimates with exit criteria for completing assigned Phase 0 objectives.
- Estimates of required resources needed to complete assigned Phase 0 objectives.

The PC/ALC and the lead MAJCOM must ensure that this information, and all organizational plans based upon it, are consistent with the Phase 0 ADM and PMD direction.

(3) *Updated Technical Planning (see D23)* - The technical planning information developed in D23 is a sub-set of the planning updates being accomplished by this activity. The information developed from that activity should be treated as an integral part of this activity.

(4) *Task Go-Ahead from PC/ALC Commander (see D79)* - Each PC/ALC involved in the Phase 0 activities should have established Center processes for reviewing and approving new work. Typically, this review culminates in the Commanders written or verbal approval to expend manpower and resources for the work in question.

b. Key Outputs:

(1) *Approved Phase 0 Plans* - After the PC/ALC and all of their supporting organizations have accounted for PMD direction and have updated and coordinated Phase 0 plans, the they will forward the documented PC/ALC planning position to the lead MAJCOM for approval. Once approved, these plans become the baseline for PC/ALC management and control of the Phase 0 activities.

(2) *Steering and Working Group Charters* - Each steering or working group formed by the PC/ALC should have a charter approved by the PC/ALC which identifies the groups' functions, responsibilities, organization, and membership, and the roles and responsibilities for the membership within the group. This charter should have ties back to the PMD and provide all of the necessary direction the group needs to operate. The charter must be defined in enough detail to distinguish the responsibilities of the steering or working group from the responsibilities of the other Phase 0 participants.

10. KEY REFERENCES:

· DoD Directive 5000.1, 23 Feb 91, "Defense Acquisition," provides overall DoD defense acquisition policies.
· DoD Instruction 5000.2, 23 Feb 91, "Defense Acquisition Management Policies and Procedures," Section E, paragraph 2, provides DoD policies on program plans.
· AFMC Pamphlet 800-60, 31 Mar 93, "Integrated Weapon System Management (IWSM) Guide," describes AFMCs IWSM philosophy and provides guidance and evolving processes for implementing this philosophy.
· AFMC Pamphlet 800-52, 4 Dec 92, "Acquisition Risk Management Guide (Preliminary)," identifies potential risk areas and tools and techniques for risk management.
· AF Policy Letter 91M-001, 20 Jun 91, "Early Industry Involvement in Acquisition Planning," establishes SAF policies regarding early Industry involvement in acquisition planning.
· AFMCR 500-18, "Commanders Policy - Systems Representative (SYREP)," describes AFMCs policies regarding the role of the SYSREPs and the acquisition teams interface with them.

11. PLANNING GUIDANCE:

a. DURATION:

(1) *Updating Phase 0 Plans* - Assuming the ADM and PMD contain no suprises, the PC/ALC should allot at least 2-4 weeks to complete and obtain final coordination and approval of the Phase 0 plans. If the ADM and the PMD cause significant changes to the Air Force planning position, or add unexpected requirements or participants, considerably more time will typically be required to account for these changes. If the lead MAJCOM is anticipating such changes, for whatever reason, an additional 2-4 months is likely a better planning estimate for final Phase 0 planning approval.

(2) *Establishing the Steering and Working Groups* - Developing the Charter for each of the steering or working groups can typically be accomplished in less than 1-week. Formal coordination and approval of the Charter could take several weeks to several months, depending on the number of organizations involved. In most cases, these groups should begin to execute their responsibilities as soon as required. The formal approval of the Charter shouldn't necessarily delay their start.

b. CONSTRAINTS:

(1) *PMD Direction* - The direction provided by the PMD must be satisfied by the Phase 0 plans.

c. RESOURCES:

(1) *Updating Phase 0 Plans* - The IPT formed to develop the Phase 0 plans (see D20A) should provide all the resources required to update the plans.

(2) *Establishing Steering and Working Groups* - The PC/ALC should identify at least one individual to ensure each necessary group is appropriately established with a formally coordinated and approved Charter. Each group formed may require specific technical expertise from several functional disciplines.

(3) *Funding* - Sufficient funding should be made available to allow necessary and appropriate travel for collecting and coordinating planning inputs from/with participating organizations and developing steering/working group Charters.

d. LESSONS LEARNED:

(1) *Updating Phase 0 Plans* - None Identified.

(2) *Steering and Working Groups* - None Identified.

e. BEST PRACTICES:

(1) *Updating Phase 0 Plans* - None Identified.

(2) *Steering and Working Groups* - None Identified.

f. TRAPS:

(1) *Updating Phase 0 Plans*

(a) *PMD Direction* - The direction provided by the PMD should not be left open to interpretation. If you have any question regarding the intent of any information provided by the PMD get it clairified before acting upon it.

(2) *Steering and Working Groups* - None Identified.

12. IMPLEMENTATION TOOLS: None Identified.

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1. ELEMENT: D23, TBS 1.1.4.3 (IFC 93-3)

2. ELEMENT TITLE: Update Technical Plans (AFMC Centers)

3. ELEMENT OWNER(S): Project Cadre; Product Center Program Development Team (ASC/YX at ASC)

4. ELEMENT STAKEHOLDE(S):

a. Implementing (System Program Director/Product Group Manager/Material Group Manager - SPD/PGM/MGM) & Operating Commands
b. Product Center XRs
c. Laboratories
d. AFMC Functionals
e. Air Staff Functionals, (e.g. XO, LG, IN, DO, etc.)
f. SAF/AQ
g. Intelligence Agencies
h. Industry

5. REQUIREMENTS:

a. DODI 5000.2, Defense Acquisition Management (DAM) Policies & Procedures, Jan 91:
(1) Part 4, Requirements Evolution and Affordability, Sections A & B, and
(2) Part 11, Program Control and Review, Sections C, D & E, Review plans, procedures and reports;
b. AF Sup 1/DODI 5000.2, DAM Policies & Procedures, Sep 92, Parts 4 thru 9;
c. AFI 10-601, Mission Needs & Operational Requirements Guidance & Procedures, Feb 93, Instruction for developing & processing AF mission needs and operational requirements;
d. Military Standard (MIL-STD) - 499B, Systems Engineering, Draft May 92, Section 3.8, Systems Engineering Process.

6. PURPOSE / OBJECTIVE(S):

a) Purpose: To update technical plans and initiate government development activities for identified preliminary system concepts for Phase 0 in support of the Operating Command, in accordance with the Program Management Directive (PMD).

b) Objective(s): To complete or initiate the following tasks that will support the PC/ALC Phase 0 activities:

(1) Complete government-level updates to technical plans development, such as:
(a) Government-level Systems Engineering Master Plan (SEMP).
(b) Program Protection Plan (PPP).
(c) Logistics Support Analysis (LSA) Strategy.
(d) Concept studies and analysis activities

(2) Complete the definition of Phase 0 technical tasks and their interfaces by functional discipline for cooperative government and industry activities:
(a) Traditional Engineering (such as electronics, aerodynamic, etc.).
(b) Specialty Engineering (such as logistics, maintenance, etc.).
(c) Test Engineering.
(d) Production Engineering.
(e) Studies and Analyses.
(f) Security.

(3) Update or establish specific working/steering groups to initiate development of:

(a) references such as the Baseline Concept Descriptions (BCDs).
(b) strawman System Requirements Document (SRD).
(c) computer resources.
(d) threat information.

(4) Develop strawman System Engineering Master Schedule (SEMS).

(5) Develop draft COEA I plan.

7. DESCRIPTION:

The overall goal is to provide a complete package for the technical needs and activities to be covered during Phase 0. This technical activity is the first opportunity following the Milestone (MS) 0 decision for the government team members to review and update the technical areas (see D20B) of significant activity for Phase 0. This is the point where the project manager must assemble an Integrated Product Team (IPT) that starts putting definitive structure and content into the developments and assessments of the concepts to be explored. Cooperation between this activity and D22 is important for this and following integration efforts. The IPT is a precursor to the Project Cadre. Coordination and participation among the stakeholders is very important to ensure consistent perspectives, understandings and commitments for the tasks, resources and schedule.

The Project IPT should make any updates to the plans as required by the Acquisition Decision Memorandum (ADM) document. One area of focus is the specific government activities to be conducted. The technical plans and tasks for both government and contracted resources must be completed. Working groups should be continued or established to initiate the development of key references such as BCDs, the SRD, and the system threat assessement report (STAR). Initial studies by the Project IPT will update the SEMP, expand the BCDs and the SRD, and document assumptions and groundrules for the technical analyses. An outline for a draft COEA I plan is also defined. Particular attention should be given to defining the scope of the anticipated COEA activities by the number of concept alternatives to be evaluated. Most of these developments and updates are fed into the project database (D31), which will make the data available for the concept exploration to be performed in D37. Some, such as key reference documentation like the SRD and COEA I outlines, are passed to the Operating Command for their development package.

8. ENTRANCE / EXIT CRITERIA:

a. Entrance: The activitiy is initiated when the Operating Command receives the approval through an Acquisition Decision Memorandum (ADM) and a Program Management Directive (PMD). The Operating Command will update their Phase 0 plans and request similar feedback from the selected PC/ALC.

b. Exit: Operating Command's approval of the Project IPT's plans and established technical baseline.

9. KEY INPUTS / OUTPUTS:

a. Key Inputs:

(1) Draft Functional Plans - (D20B)

(a) Initial SEMS (Systems Engineering Master Schedule),

(b) Strawman SEMP (Systems Engineering Management Plan),

(c) Initial ILSP (Integrated Logistics Support Plan),

(d) Updated LSA (Logistics Support Analysis) Strategy,

(e) Initial TEMP (Test and Evaluation Master Plan),

(e) Strawman PPP (Program Protection Plan),

(2) Work Statements - (D20B & D34) -- the PC/ALC identifies all (technical) activities that will be required to successfully accomplish Phase 0 objectives. These cover both government and industry tasks, along with the timeframe of their execution. Coordination with the Operating Command draft plans (C14) is important.

(3) Strawman BCD (Baseline Concept Document) - (D20B).

(4) Summaries from prior steering groups for threat, concepts, etc.

b. Key Outputs:

(1) Technical Analysis Plans for Government and Contracted Activities (D22 & D31).
(2) Draft SRDs (C19).
(3) Draft BCDs (C19).
(4) Draft COEA I Plan (D31).

10. KEY REFERENCES:

a. AFPD 10-6, Operational Requirements, Jan 93, Policy directive for implementing the mission needs and operational requirements developments;

b. DOD 5000.2-M, Part 1 & following, Feb 91, Procedures and formats to be used for various milestone documentation.

c. AF Sup 1/ DODI 5000.2, Acquisition Management Policies & Procedures, Sep 92, Part 2, Section B, Policies for interface management.

d. MIL-HNBK-499-3, System Engineering / Configuration Management (SE/CM) - Life Cycle Application, Draft Aug 92.

e. MIL-STD-1388-1A, Logistic Support Analysis (LSA), Apr 83, provides general requirements and task descriptions for performance of LSA.

11. IMPLEMENTATION TOOLS:

a. ASC/YX Program Development Process Product; these include a process flow chart, a process checklist and a process guide (see D20).

b. Air Force Acquisition Model; an AFMC managed acquisition tool.

c. MIL-HNBK 499-3; process guide.

d. Outline from AFR 800-3, Acquisition Management, Engineering for Defense Systems, 17 Jun 77.

12. PLANNING GUIDANCE:

a. DURATION: - This activity will typically take 2-3 months for a full system deficiency or 4-6 weeks for a major subsystem or component. This assumes that some input has been developed for these activities during the efforts prior to MS 0. Aspects that could lengthen the timeframe include number of organizations involved, particularly across PC/ALCs joint service or international involvements, and political sensitivities.

b. CONSTRAINTS: PMD guidance/direction and the subsequent impact on Phase 0 plans.

c. RESOURCES: Typically 15-20 key persons from the PC/ALCs for a full system assessment and 6-10 for a major subsystem or component. This activity is preferably performed by an integrated product team (IPT), involving all principal stakeholders and participants of Phase 0.

d. LESSONS LEARNED:

(1) The technical planning should consider the synergy from cooperative government and industry efforts for Phase 0. Often, the government resources and capabilities can be complemented by those available through contracted efforts. This adds additional emphasis on maintaining close ties to industry to allow effective interfaces at key points in the overall developments. At this stage, it also gives a heads-up to the potential industry participants.

(2) The technical OPR should look for active participation from all team members. Particular attention should be given to those functional areas that have direct connection to the type of need being addressed. This is not just a passive exercise; the team members should be effectively "committing" the identified resources.

(3) It is crucial that these updates and initial activities be communicated with and approved by the Operating Command. The approach used throughout AFMC is to utilize the SYSREP (AFMC representative physically located at the MAJCOM, usually with the Plans and Programs or Requirements offices, i.e. /XP or /DR) as a means of keeping the information exchange a dynamic process.

e. BEST PRACTICES:

(1) A core IPT with actual experience from the Pre-MS 0 activities is the preferred approach. This will ensure a more consistent perspective being maintained and also that nothing is lost during the transition. Accepting the fact that some turnover will always occur, documentation becomes important (see D15).

(2) Attention should be given to keeping the most important (key) functional area representatives as members of the IPT. Corporate memory is not easily recovered or reconstructed, even with documentation.

(3) It is important to periodically review the original factors that evolved during the development of the MNS, ADM and PMD. These are the main drivers.

f. TRAPS:

(1) It is difficult to identify a single point where plans are updated and concept developments are initiated.

(2) External influences can have an effect on the plans at this stage. Updated plans for Phase 0 should emphasize maintaining an open and broad perspective for evaluating the identified set of alternatives. Maintain caution about the "right" solution sneaking into the process.

(3) Small project teams with limited representation are often faced (knowingly or not) with having to pursue activities that are supportable only through contracted efforts. Too often this contracted approach is the preferred choice, even when there are adequate resources available to effectively organize an in-house team. It is vitally important that the IPT fully exercise this planning function and seriously address the concept of an in-house team for paralleling the efforts performed by industry.

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1. ELEMENT: D27, TBS 1.2.1.3 (IFC 93-3)

2. ELEMENT TITLE: Explore Use of Nondevelopmental Items (NDI)

3. ELEMENT OWNER(S): The Office of the Assistant Secretary of Defense for Production and Logistics (OASD (P&L) SDM) is charged with overseeing DoD activity as it relates to NDI procurement.

4. ELEMENT STAKEHOLDER(S): Developing Project Office, Operating Command, Air Force Competition Advocate, The Deputy Under Secretary of Defense for Acquisition Reform (OSD/DUSD(AR)).

5. REQUIREMENT:

a. DODI Directive 5000.1, Defense Acquisition, Part 1, page 4, Para 1.c, 23 Feb 91, states maximum practicable use shall be made of commercial and other nondevelopmental items. In describing these items, maximum practicable use shall be made of nongovernment standards and commercial item descriptions.

b. DODI 5000.2, Defense Acquisition Management Policies and Procedures, Part 6, Section L; Part 6, Section H, para 3.a.(3); Part 3, page 3-11; and Part 10, Section C, para 2.d, Nondevelopmental Items, 23 Feb 91, states policies and procedures which establish the basis for cost-effective use of commercial products and other non-developmental items in defense systems and equipment.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose of this element is to explore purchasing/using existing products or systems rather than pursuing development of new items.

b. Objectives: Explore existing or emerging products/technology that has potential to save lifecycle cost given the requirements and updated information at this program stage. The following objectives can be used to analyze potential products/technology:

(1) Reduced developmental cost
(2) More rapid fielding
(3) Proven capability/reliability
(4) Increased competition
(5) Established logistics support
(6) Tech data developed
(7) The item is likely state of the art
(8) Competitive Forces have shaped its functionality
(9) Existing established market
(10) Reduced risk

7. DESCRIPTION:

a. This is an update to the work which went on in D13 on nondevelopmental items. The brief outline accomplished in D13 is updated to reflect changes in the program including requirements and threat assessment.

b. At this stage, preliminary concepts are being explored to support development of the MNS Summary (D37 and C19). As part of this effort, the Air Force Project team is also exploring Cooperative Opportunities (D28) to update preliminary concepts. The Air Force will look at industry's available off-the-shelf items and will evaluate them for satisfying Air Force needs (D29).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: A material need has been identified and options need to be formulated. Also preliminary performance ranges, thresholds, and trade-offs associated with what is known about NDI at this point of the project.

b. Exit: Update NDI information used in the concept exploration studies. Also, update the preliminary investigation of alternative logistics support.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) The project team requires a description of the mission need from the MNS summary.

(2) Market surveillance of laboratories and the industrial base through trade shows, trade catalogs, and trade magazines is the primary method for gaining knowledge of existing technology and products (D29). An updated cost effective analysis should be performed on the item to find if it is a viable solution to the item needed.

b. Outputs: Provide the Operating Command with insight to potential concept alternatives that address his draft mission need (D37). It is important that selected NDI alternatives flow back into this element so they can be integrated in a realistic need.

10. KEY REFERENCES:

a. Title 10 U.S.C. 2325, Preference for Non-Developmental Items, 18 Oct 87. This section of Title 10 mostly describes Congressional mandate to the Air Force to look at and use NDI in a weapon system whenever possible.

b. Proposed Strategic Plan to Pursue Acquisition Reform, 8 Jun 93. Contains draft information on using NDI as an preferred alternative to developing new systems, and establishing a group of advisors from OSD/DUSD(AR) to help in NDI procurement.

11. IMPLEMENTATION TOOLS:

a. Trade magazines and trade shows for market surveillance.

b. Buying NDI/SD-2, Oct 90. Contact Office of the Assistant Secretary of Defense (Production and Logistics), Washington, D.C. 20301-8000. This tool mainly describes the buying process for NDI.

c. Market Analysis for Non-Developmental Items, SD-5. Contact Office of the Assistant Secretary of Defense (Production and Logistics), Washington, D.C. 20301-8000. Describes NDI as an excellent alternative to business as usual.

d. Joint Command Commercial Off-the-Shelf (COTS) Supportability Working Group (CSWG) Final Report, Jun 91. Contact ASC/SDC. Describes the life cycle concerns of NDI. This is an excellent guide and is highly recommended to anyone who is considering the use of NDI.

e. Technical assessments guide for Nondevelopmental Aircraft. Contact H. Wood , ASC/ENF, 59472.

12. PLANNING GUIDANCE:

a. DURATION: You should start with the Mission Need Statement (MNS) and the Government Systems Requirement Analysis to get a handle on the architecture/configuration alternatives. This is an ongoing process throughout Pre-Milestone 0 to Milestone I and will vary in duration depending on complexity of the identified mission need.

b. CONSTRAINTS: As always, timing is a major constraint. If an NDI is selected early, it may become obsolete and out of production by the time the weapon system is fielded. You have limited data rights with NDI, no configuration control, and no existing AF support structure.

c. RESOURCES: All functional areas need to be involved in NDI. Much of their involvement will be in the requirements area. There will be a low level of man-hours with NDI at this stage of the project. Most of the man-hours will be put into the very important requirements area so that realistic requirements levels will be explored and a better selection of NDI will be made.

d. LESSONS LEARNED: There were seven lessons learned in the Automated Lessons Learned Capture and Retrieval System (ALLCARS) data base. The numbers are 1449, 20009, 20012, 20016, 20045, 20047, 20084. These items all dealt with logistical support problems and problems with slightly modified NDI items. Therefore, pay special attention to these areas when considering NDI.

e. BEST PRACTICES: If NDI is not considered at the early stages of the acquisition cycle then you probably will not be able to acquire it as a NDI item later.

f. TRAPS: Not taking the follow-on support and possible added life cycle costs into account when using NDI. Too much modification usually negates any life cycle cost savings. A military application of NDI may have a significantly different operating environment and usage than experienced in commercial applications which may impact the operational characteristics, performance, and useful life of the item. A through technical evaluation should be accomplished to avoid unacceptable risk.

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1. **ELEMENT:** D28, TBS 1.2.1.4 (IFC 93-3)

2. **ELEMENT TITLE:** Explore Cooperative Opportunities (CO)

3. **ELEMENT OWNER(S):** Deputy Under Secretary of Defense (International Programs)(DUSD(IP)), Assistant Under Secretary of Defense for Programs & Acquisition (USDA(P&A)), SAF/AQXI, AFMC/IA, and WL/XPI.

4. **ELEMENT STAKEHOLDER(S):** Project Office

5. **REQUIREMENT:**

a. DODI 5000.2 , Defense Acquisition Management Documentation and Reports, 23 Feb 91, Part 3, pg. 3-9, and Part 5, Section F, para 3E. This identifies the requirement to consider potential cooperative research and development.

b. DOD 5000.2-M Defense Acquisition Management Documentation and Reports, Feb 91, Part 4, page 4-4-1; this provides format for CD.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The potential for international Cooperative Research and Development of military equipment is required to be addressed at Milestone 0. A formal Cooperative Opportunities Document (COD), with updates, is required at Milestone I and beyond (see DODI 5000.2 for details).

b. Objective: To determine how CO can be applied to the program. The first brief outline of applicable Cooperative Development (CD) items is identified in CD (D14). Now this list of CD is explored using updated information to identify usable Cooperative Opportunities.

7. **DESCRIPTION:**

a. Key inputs on the flow chart: Is to conduct concept exploration studies formulation and evaluation (D37), and, for industry monitors and participates in government programs, to exchange information through IR&D, RFIs, RFPs, or other means (D29). In this area, DoD's influence on industry is primarily through Small Business Innovation Research (SBIR) and Independent Research and Development (IR&D) activities. DoD activities invite small business firms with strong research and development capabilities in science and engineering to submit proposals under the SBIR program. The objectives of this program include stimulating technological innovation in the private sector, strengthening the role of small business in meeting DoD research and development needs, fostering and encouraging participation by minority and disadvantaged persons in technological innovation, and increasing the commercial application of DoD-supported research or research and development results. Exploring use of Nondevelopmental Items (NDI) (D27) is accomplished in a parallel time frame with this effort. NDIs (D28) output is D9, Systems Concept Option (SCO) Formulation and Evaluation, which provides the Operating Command with insight to potential concept alternatives (such as CO) that address his draft mission need.

b. The DODI 5000.2 requirement for assessing CO mandates the consideration of buying allied systems or cooperating between our various allies on development, before initiation of a new acquisition program. A CO assessment is required for Acquisition Category (ACAT) I programs and cooperative opportunities should be investigated as part of the acquisition strategy for ACAT II, III, and IV programs. Specifically, DODI 5000.2 specifies an order of preference for new programs as follows:

(1) Use or modification of an existing U.S. military system.

(2) Use or modification of an existing commercially developed or Allied system that fosters a non developmental acquisition strategy.
(3) A cooperative research and development program with one or more Allied nations.
(4) A new joint Service development program.
(5) A new Service-unique development program.

c. Cooperative Development must be addressed during this stage of the program with updates to any program changes since Milestone 0 reviews, and documentation at this stage will be used in the COD at Milestone I.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: A preliminary list of Cooperative Opportunities will be revised with updated information from D37.

b. Exit: Complete exploration studies/analysis and evaluation associated with what is known about Cooperative Opportunities at this point of the project.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: A deficiency or technological opportunity has been validated and preliminary requirements have been outlined. Key inputs on the flow chart are D37 and D29. In this area, DoD's influence on industry is primarily through SBIR and IR&D activities. DoD activities invite small business firms with strong research and development capabilities in science and engineering to submit proposals under the SBIR program. The objectives of this program include stimulating technological innovation in the private sector, strengthening the role of small business in meeting DoD research and development needs, fostering and encouraging participation by minority and disadvantaged persons in technological innovation, and increasing the commercial application of DoD-supported research or research and development results. D27 is accomplished in a parallel time frame with D28.

b. Outputs: An updated list of potential CO systems or a determination if, at this stage of the program, CO is viable. This will then feed into D37 to update the Concept Exploration Studies.

10. KEY REFERENCES:

a. HQ AFMC/XT Letter, 9 Mar 92, Development Planning Relationship to International Opportunities. This shows how CO is integrated into the program life cycle.

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: The amount of time needed to accomplish this activity is dependent upon the complexity of the item. Forty man-hours of the project management team should be more than enough time.

b. CONSTRAINTS:

(1) Time and money in investigating various alternatives.
(2) Lack of a central location to obtain needed information on existing and planned military and allied nation projects.

c. RESOURCES: Not much time is needed at this point of the program. Forty man-hours for project office personnel should be more than enough for a program of any complexity.

d. LESSONS LEARNED: There are no lessons learned in the Automated Lessons Learned Capture and Retrieval System (ALLCARS) database on this item.

e. BEST PRACTICES:

(1) Start as early as possible compiling information on U.S. and allied programs which should be evaluated for joint program applicability. Consideration to buy or cooperate at or near the Milestone I decision is too late to effectively pursue overseas opportunities. Consideration of overseas opportunities must begin during development planning or, for technology push, be an outgrowth of ongoing S&T cooperation. Therefore, it is important to begin early to investigate the various alternatives dealing with cooperative development programs.

(2) The Defense Acquisition Board (DAB) will be much more inclined to hold up programs that have not identified ways to reduce costs to the U.S. taxpayer through cooperation. (Donald Yockey, Principal Deputy Under Secretary of Defense for Acquisition: Appearance before the Senate Armed Services Committee, 12 Jun 1990). This analysis should be done to assist in making a decision, not just to fill out the paper work!

f. TRAPS: Don't forget to establish early a comprehensive protection and technology control program to identify and protect classified and other sensitive information.

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1. ELEMENT: D29, TBS 0.1.3.1 (IFC 93-3)

2. ELEMENT TITLE: Industry Monitor and/or Participate in Government Programs through IR&D, RFI, RFP, or other means

3. ELEMENT OWNERS: Project/Program Manager (PM) and Procurement Contracting Officer (PCO).

4. ELEMENT STAKEHOLDERS: Industry and Project/Program Team.

5. REQUIREMENT:

a. Department of Defense Instruction 5000.2

b. Defense Acquisition Management Policies and Procedures, 23 Feb 91:

(1) Part 5, Section A, paragraph 3c
(2) Section E; Part 10
(3) Section C, paragraph 2e

6. PURPOSE/OBJECTIVE(S):

a. Purpose: The overall purpose of this data sheet is to provide a single reference that explains the industry interface across the spectrum of Pre-Milestone I activities. It summarizes blocks that interface with industry and references them for specific details. Two topics that are not covered in other data sheets, Independent Research and Development Projects (IR&D), and Small Business Innovation Research (SBIR) activities, are described.

b. Objectives: Through participation in pre-milestone I activities industry will gain visibility into potential government acquisition activities. This will allow them to prepare to respond to requests for acquisition support and where to concentrate their efforts for potential new business opportunities. This interaction will also provide the government project team current industrial information.

7. DESCRIPTION: The government interface with industry, for purposes of this discussion, is divided into three areas: prior to Milestone 0, Milestone 0 to Request for Proposal (RFP) preparation, and RFP to contract award.

a. Area 1: Industry Interface Prior to Milestone 0: In this area, DOD's influence on industry is primarily through SBIR and IR&D activities. DOD activities invite small business firms with strong research and development capabilities in science and engineering to submit proposals under the SBIR program. The objectives of this program include stimulating technological innovation in the private sector, strengthening the role of small business in meeting DOD research and development needs, fostering and encouraging participation by minority and disadvantaged persons in technological innovation, and increasing the commercial application of DOD-supported research or research and development results.

As a part of the overhead on DOD contracts, approximately $8 billion is annually set aside for contractor IR&D. While individual companies control how their portion of this money is spent, it must support DOD efforts. It is clearly in the interest of both the contractors and the Air Force that these efforts work efficiently toward goals that will be of value to our programs. Delivery of information supporting these goals establishes a communication link between Air Force and industry, with the Air Force providing insight into future requirements and industry providing information on IR&D projects to meet those requirements (see IFC block D3, Establish Industry Links).

In order to support the construction of the Mission Needs Statement, the procurement command prepares a list of potential concept alternatives for the operating command that addresses the draft

mission need. This list of options quantitatively defines the desired operational and functional needs at the task level, identifies preliminary concept alternatives to be applied against the draft mission need, and provides the trades and sensitivities data that relate the operational requirements to the system-level concept approaches. More detailed information can be found in IFC block D9, Develop Preliminary System Concept Options (SCOs).

The data necessary to construct the SCO is developed in part through several sub-analysis. Public Law mandates the use of nondevelopmental items (NDI) whenever possible. The use of cost-effective commercial products and other nondevelopmental items rather than pursuing development of new items is determined through an analysis described in IFC block D13, Determine Applicability of Nondevelopmental Items. For major defense acquisition programs, Public Law also mandates an analysis of cooperative opportunities early in the acquisition process. This analysis considers buying allied systems or cooperating on development before initiation of a new acquisition program. The results of this analysis are summarized in a Cooperative Opportunities Document (COD). IFC block, D14, Determine Suitability of Cooperative Development, explains this process in greater detail.

In preparation for the anticipated Phase 1 efforts, programmatic and technical plans are developed to support the lead MAJCOM. A dialog is established with industry and the stakeholders at this stage to establish a reasonably accurate technical framework for the tasks and other activities that should start after a positive Milestone 0 decision. The objective of this effort is to ensure systems engineering and configuration management philosophies are incorporated into the project planning process and to complete the Product & Logistic Centers tasks identified in IFC block D20B, Draft Phase 0 Technical Plans.

b. Area 2: Industry Interface Between Milestone 0 and RFP: During this portion of Phase 0, industry/government interfaces are iterative in nature and assist the government in system requirements development and concept exploration.

Industry/government team focuses on the review and update of the Draft Phase 0 Technical Plans, with the primary objective to update technical plans and initiate preliminary system concept developments for Phase 0 in support of the lead MAJCOM, as identified in the Program Management Directive (PMD). These plans will provide a complete outlook of the technical needs and activities to be covered during Phase 0. The specific tasks to be completed are discussed in IFC block D23, Update Phase 0 Technical Plans.

The industry interface also focuses on the Systems Requirement Analysis (SRA). The SRA process is a comprehensive, iterative system definition process that transforms validated customer needs and objectives into a life-cycle balanced solution set of system products and process designs. The SRA also provides information for other analyses, feedback to the customer, and acquisition process decisions. If the program director/manager determines a contractor-performed SRA is required a contractual vehicle is pursued as outlined in IFC block D35, Phase 0 Studies Procurement Activity.

The government conducts concept exploration studies to consider all activities necessary to identify and evaluate system requirements and alternative concepts for satisfying the validated need. It produces detailed information for updating the technical and programmatic data bases (established in Pre-Milestone 0 activities) and provides parametric data for use in planning and conducting the Cost and Operational Effectiveness Analysis (COEA). IFC block D37, Conduct Concept Exploration Studies, explains this process.

As the government is weighing alternatives, they reconsider the use of NDI and cooperative opportunities with industry to meet a material solution. The government determines the suitability of COD through an analysis that allows decision makers to assess whether or not to structure a program as a cooperative development program. The industry inputs are used at defined intervals to continually update the government process with currently available technologies. IFC blocks D28 and D41 explain the NDI update process, and IFC blocks, D28 and D42, provide detailed information on how the government reconsiders cooperative opportunities.

The preferred COEA alternatives are further defined and developed. The concepts must be developed such that they provide a sensible balance between the user's stated needs/requirements, the planned program schedule for eventual deployment of that alternative, and the estimated cost of the program needed to deploy that conceptual "system." A cost estimate must be prepared for each of the conceptual "systems" that forecasts the program acquisition, operations and support (O&S) and life cycle cost (LCC). Operational requirements will be refined and translated into technical requirements and identified in the system requirements document (SRD) for that system concept. IFC block D 37B, Concept Definition, explains this further.

c. Area 3: Industry Interface RFP to Contract Award: This phase is defined from the beginning of RFP preparation to contract award. In this phase industry is interfacing with the government primarily through the PCO. Industry response to the draft RFP is designed to obtain industry feedback on the planned acquisition. The draft RFP will enable industry to respond more effectively in their proposals, promote a clearer understanding of requirements, and aid in producing a more effective, quality RFP and resultant contract. It also reduces proposal preparation and evaluation time. More detailed information can be found in FC block D64, Prepare Request for Proposal (RFP), which describes the planning and preparation of a solicitation, usually an RFP, from which industry can prepare and submit a proposal for a program/project.

After the draft RFP has been finalized into the final RFP, there is a review/approval process the RFP must complete prior to its release as described in IFC block D69, Release Request for Proposal (RFP). This IFC block describes the process needed in order to release an RFP to industry from which they can prepare and submit a proposal in response to the requirements of the program/project. After the RFP completes this review it is released to industry.

Industry prepares its proposals which will be used as a basis from which to award a contract, either by the formal source selection process for competitive acquisitions or by the negotiation process for noncompetitive acquisitions. The purpose of receiving industry proposals is to acquire bids from sources who could possibly fulfill the government's requirements at a fair and reasonable price. Through source selection, or the evaluation process, a team of acquisition professionals review the proposals submitted in response to a RFP, and document the strengths, weaknesses, and risks associated with each proposal. From the results of the evaluation, the Source Selection Authority (SSA) determines which contractor is best qualified to fulfill the government's requirements at an affordable cost. IFC block D70, Receive Industry Proposals and Conduct Source Selection (Competitive) further explains this process.

The source selection and negotiations process culminates with the contract award. The purpose in awarding the contract is to formalize the government's requirements into a binding, legally enforceable, contractual vehicle between two parties, namely, the government and a specified contractor. The contract must clearly reflect the agreement of the parties and be consistent with current law, regulation and policy. More detailed information can be found in IFC block D74, Award Contract(s).

After a successful Milestone I/IV decision, a SPO cadre expands into a SPO in order to assemble in a central physical location to accomplish all the tasks and activities required during the remaining phases of the acquisition. While SPOs may be formed to support a single program, this is usually only the case in major, high priority acquisitions. In the majority of cases, SPOs are formed to bring together functional expertise which would be used to support a number of smaller similar programs (basket SPO). The working relationship with industry, established by the SPO cadre, should be reinforced with the expanding organization. During this period, different government disciplines within the SPO will be nurturing working relationships with their industry counterparts. More information can be found in IFC block D76, Establish System Program Office (SPO).

8. ENTRANCE/EXIT CRITERIA: Due to the nature of this datasheet, please refer to the referenced data sheets for this information.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: Industry's involvement in the following activities, followed by the required input.

D3 - Future government requirements
D9 - Concept alternatives
D20B / D23 - Work Statements / Tech Plans
D35 - Government requirements and objectives
D37 - COEA technologies of interest
D37B - Refined requirements and system specifications
D64 - Draft RFP
D69 - RFP
D74 - Contract
D76 - Government program managers

b. Outputs: Industry's feedback to the following activities, followed by the required output.

D9 - Concept alternatives
D13 / D14 - NDI / Coopertative opportunties
D20B / D23 - Work statements / Tech plan alternatives
D35 - SRA
D37 - Contractor/Government Systems Requirements Analysis
D27 / D28 - NDI / Coopertative opportunities updates
D37B - COEA updates, alternative details
D41 / D42 - NDI / Coopertative opportunties updates
D64 - Draft RFP response
D70 - RFP response
D76 - Contractor Program

10. KEY REFERENCES:

a. See referenced datasheets

b. ASAF(A) Acquisition Policy Letter 91M-001 (20 Jun 91) describes the intent and structure of early industry involvement. It provides a three phased approach to teamwork for the acquisition planning and RFP process and also suggests a number of methods of communication by which the government may solicit early industry involvement.

c. AFSC Financial Handbook, Contracting, Section 16-17a. through f.

d. AFMC FARS 5335.90, Program Research and Development Announcements (PRDA).

11. IMPLEMENTATION TOOLS:

a. AFSC Request for Proposal Process Guide, Jan 92

b. Electronic Bulletin Boards - electronic capabilities accessible by industry over common telephone lines, modem, and IBM compatible computer can be used to index library information, upload essential documents or provide information in an expeditious manner. AFCC has established such a link called Helpful Information for Industry (HIFI) which identifies current and planned acquisition activities. In addition, the F-22 and B-2 Systems Program Office have established bulletin board links, as does ASC/PK, and ASC/CY.

12. PLANNING GUIDANCE:

a. DURATION: The duration to initiate an industry link is dependent upon user's schedules, funding, and the contracting action taken to implement industrial studies. If a task order contract already exists, the effort can take from 1 to 2 months to place on contract. If a formal Request for Proposal is required, the effort can take 3 to 9 months depending upon size of the project and the number of draft RFP iterations. Once initiated, duration of the government/industry interface may continue for years until the project terminates.

b. CONSTRAINTS: Availability of adequate funding, time, and schedules. All work requested from an industry participant must be covered by a contractual vehicle.

c. RESOURCES: Project/Program Manager, PCO

d. LESSONS LEARNED:

(1) Program success is dependent on good government/industry team work; poor coordination could easily lead to lack of understanding, schedule slips, and cost overruns.

(2) Make Use of Bulletin Boards (ESC Jul 92) Use of electronic bulletin boards is an effective means to distribute your draft RFP documents in a paperless mode. Rather than having your potential contractors travel to your location to obtain a hardcopy, they can obtain an electronic copy with only a phone call. Put your documents on the electronic bulletin board as they are created--an incremental draft RFP of sorts. This allows prospective contractors adequate lead time for proposal development and also allows for greater interaction between industry and government.

(3) M Foreign Disclosure (ASC South Jul 92) Be sensitive that early industry involvement creates foreign disclosure issues. Check with your local foreign disclosure office to ensure regulations and policy are being followed.

e. BEST PRACTICES: Blanket Notice of Contract Action (WL Jul 92) A blanket Notice of Contract Action is published semiannually to provide earliest possible notice to industry of planned acquisitions. By identifying all planned activity for a 6 month period, industry is provided the opportunity to form teaming arrangements or to improve business decisions in the use of limited resources.

f. TRAPS:

(1) Limitation to large contractors and not reviewing all potential offerors available. Even though new technological advancements are usually found in large Research and Development organizations, the government should make all efforts not to exclude anyone. All offerors need to be given an equal opportunity. This should be handled through the Small Business Coordination and synopsis process.

(2) In the past, lack of security procedures allowing us to supply classified intelligence for IR&D efforts served as a roadblock to providing meaningful guidance. Procedures have recently been established to successfully transition data such as advance threat list, Air Force models, test facilities information, and 6.2/6.3 laboratory program information to all companies working in a certain technology. Once information is provided, industry can respond with information on IR&D projects, modeling, and test capabilities that are being worked in these technologies.

(3) After RFP release, absolutely no contact is to be made with any of the offerors except through the PCO.

(4) The tendency of noncontractual team members to work outside the confines of the contractual instrument.

1. ELEMENT: D30, TBS 0.1.8.1 (IFC 93-3)

2. ELEMENT TITLE: Ongoing Laboratory Advanced Technology Development, Demonstration, and Transition

3. ELEMENT OWNER: Laboratories (principally WL at ASC).

4. ELEMENT STAKEHOLDERS: Operating Command, Industry, Product Center: Development Planning (XR at ASC), Program Development Team (YX at ASC), Engineering, and Project Manager (for Pre-Milestone I, later referred to as Program Director and System Program Office).

5. REQUIREMENTS:

a. DoDI 5000.2, Defense Acquisition Management Policies and Procedures, Part 5, Acquisition Strategy, Section C, Technology Development and Demonstration, and Section D, Technology Transition and Prototyping.

b. Local policy per AFMC and ASC direction (see references). Successful technology development and transition requires close cooperation between the technology developers (laboratories) and the technology customers (Operating Command and Program Director). For AFMC, this process is overseen by the Technology Master Process (TMP) and is implemented at ASC through the Technology Transition process, co-owned by WL and ASC/EN.

6. PURPOSE/OBJECTIVE(S):

a. Purpose: The timely development, transition, and application of technology to enable the System Program Directors to acquire and sustain superior systems.

b. Objectives:

(1) Influence the laboratories to invest their funding for maximum benefit to your program.

(2) Provide the laboratories with planning information as early as possible to influence overall investment strategy. (D5)

(3) Identify for the laboratories (and the operating command) what technologies the acquisition program will need (identified by the results of studies and analyses) from the laboratory community to satisfy the program (and Operating Command's) requirements (D9 and D18).

(4) Influence the definition of laboratory programs to develop technologies which satisfy the operating command requirements. These requirements are reflected in cost, schedule, and performance objectives of the acquisition program (D37 and D43).

(5) Influence the execution of laboratory programs to provide transitionable, timely, high quality, relevant, and cost effective technologies for the acquisition program's application (D37B and D76).

7. DESCRIPTION: The laboratories provide essential support to acquisition programs by funding the development of key leveraging technologies not available from industry. The Project Manager should enlist the laboratories as team members at the earliest possible time, and involvement in Technical Planning Integrated Product Team (TPIPT) assessments of laboratory programs is not too early. Laboratory involvement at this early stage enhances the laboratory understanding of the operating command needs and allows maximum flexibility in technology investment strategies that satisfy the needs. It also provides for maximum technology solution flexibility during later development phases.

The flow of need/project/program influence on the laboratory program development and execution can be summarized as follows:

Pre-Phase 0: The TPIPTs perform a the Technology Area Assessment to influence overall investment strategy (D5).

Phase 0: The TPIPTs prepare Technology Investment Recommendation Reports (TIRRs) and system development personnel begin system concept development. These efforts begin to identify leveraging functional capability priorities (D9/D18/D37/D43).

Phase 0 and later: The project/program solidifies necessary leveraging functional capabilities and begins to identify application-specific technology solutions (D37/D43/D37B/D76).

a. The project team should optimize the laboratory contribution to the acquisition program with these interfaces:

(1) The Technology Area Assessment (D5), Technology Guidance preparation (D18), and Technology Needs Assessment (D43), all conducted or sponsored by the TPIPTs. This is proposed (by the TMP) to be the most influential and direct operating command input into the laboratory planning process.

(2) Annual operating command reviews, ratings and ranking of laboratory programs. This is currently the most influential operating command input into the laboratory planning process.

(3) Direct involvement of laboratory personnel in a project/program and/or direct interaction between laboratory project managers and program personnel. Once the planning process has responded to program needs, this is the area of highest return to a program, by influencing the laboratory to provide the most system-specific technology program practical. The acquisition project will need to participate with the laboratory on the Technology Transition team in writing the Technology Transition Plan and become a signatory to it. The TTP becomes important to a system acquisition when it includes system-specific criteria for validation of technology readiness to transition. The TTP should be used by the laboratory program contractor to mature the technology to the TTP Transition Criteria requirements.

b. Major interactions between acquisition developments and the laboratories occur through established review cycles. These opportunities are described relative to their host blocks in the acquisition cycle.

(1) Pre-Phase 0:

(a) At the outset (D5): One of the functions of the TPIPT process is to perform periodic reviews of laboratory programs through Technology Area Assessments (TAAs). The TAAs are used by Mission Area Planners and operating command action officers, as well as the laboratories themselves, to forecast the technology areas that should be addressed by laboratory program planning to satisfy operating command needs. This is a broad assessment of overall laboratory thrust areas to meet all the operating command needs of the entire mission area represented by the TPIPT (as opposed to the needs of a specific system).

(b) Further into the cycle (D18): The TPIPTs will provide further guidance to the laboratories in a Technology Investment Recommendation Report (TIRR) and Mission Area Development Plan. This guidance is accomplished through development of preliminary System Concept Options and operating command preparation of the draft Mission Need Statement and identification of Critical Mission Needs that help focus technology developments on functional needs. This is a narrowing of the focus of laboratory efforts from general technology areas to specific functional capabilities that address mission needs.

(2) Phase 0:

(a) Concept Exploration Studies (D37) are used to identify critical technology needs. The associated Technology Needs Assessment (D43) is a continuation of the prior efforts, and attempts to influence particular laboratory programs to address the specific needs (again, cost, schedule, and performance) of identified system concepts

(b) The conduct of Concept Definition for Preferred Alternatives (D37B) is the final step (for Phase 0) in the solution of the Operating Command's needs with a system concept, and defines the advanced technology needed for transition and integration.

(c) Establishment of a SPO should include a request to the laboratories for direct support in the form of a collocated resource to represent the labs full time in the SPO.

c. Actions that should be taken early (Pre-Phase 0, if possible) in the acquisition cycle:

(1) Assignment of a laboratory Technology Transition Manager at the earliest possible opportunity to coordinate technology transition activities between the acquisition project/program and the laboratories.
(2) Assignment of a Chief Engineer to the program. An important function of engineering is to support evaluation of laboratory technologies for specific system applications.
(3) Assignment of dedicated logistics support. An important function of logistics is to support evaluation of laboratory technologies for specific system applications.
(4) Identification of the operating command Action Officer and his means of input to the operating command review of laboratory programs.
(5) Vigorous participation in the relevant mission area TPIPT and technology program generation within the laboratories. Build support for the system, and thus the laboratory response to system needs, through partnership with the labs and operating command.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The acquisition cycle initial interface with the laboratory should be an ongoing process through participation in the Technical Planning Integrated Product Teams (TPIPTs).

b. Exit: Laboratory involvement in an acquisition program doesn't always end when identified technologies have been developed, demonstrated, and transitioned to the acquisition program. Laboratory personnel are usually provided to support program offices to assist in application and fielding of new technologies. This support can continue for the entire life cycle of the system.

9. KEY INPUTS AND OUTPUTS:

a. The following inputs to the laboratory are the basis for improving the effectiveness of technology development, demonstration, and transition:

(1) From D05:

(a) Technology Area Assessments conducted by TPIPTs and used as input by mission area planners (C4) and laboratories (D30).
(b) Briefings from TPIPTs to mission area planners (C4), laboratories (D30), industry (D29), etc.

(2) From D09: Evaluations of laboratory advanced technology development, demonstration and transition.

(3) From D18: Guidance on the technology needs are provided to appropriate laboratories (D30). The TPIPTs publish an annual Technology Investment Recommendation Report (TIRR) and a Mission Area Development Plan (MADP) that describes 15 to 20 years of planned Air Force developments, including laboratories, SPDs/PGMs/MGMs, and operating commands.

(4) From D20B: Draft technical plans for review.

(5) From D23: Updated technical plans for review.

(5) From D37: Critical technologies list.

(6) From D37B: Refinements to Advanced Technologies Needed for Transition and Integration.

(7) From D43:

(a) Technology Investment Recommendation Reports

(b) Requests for Technical Assistance

(c) Laboratory Program Assessment Reports

(d) Draft Technology Transition Criteria for the TTP

(8) From D76: Request for laboratory support of the critical technology demonstrations being planned by the SPO.

b. The following outputs from the laboratory are necessary to successfully accomplish the respective acquisition program tasks:

(1) To D05 and D43:

(a) Technology Program Reviews (WL/XP)

(b) Technology Plans for Wright Laboratory (WL/XPR).

(c) Technology Area Plans (WL/XPR)

(d) IR&D Annual Program Reviews (WL/XPR)

(e) IR&D Annual Plans and Reports (WL/XPR)

(f) Literature Searches (WL/DOC). The Wright Laboratory Technical Library would be the primary facilitator for accomplishing literature searches. WL-assisted literature searches will allow you to search the DTIC and other information databases through which you should be able to find information on technology development programs of DoD laboratories other than WL. These searches can be coordinated with the emerging Technology Transition Office (TTO) to prevent duplication of effort.

(2) To D09: Evaluate laboratory advanced technology development, demonstration and transition

(3) To D13, D27 and D41: Market surveillance of laboratories and the industrial base through trade shows, trade catalogs, and trade magazines is the primary method for gaining knowledge of existing technology and products (D29). These are a few of the methods employed by the TTO in maintaining a database of available technologies. An updated cost effective analysis should be performed on the item in the associated development block (D9, D37, D37B), to find if it is a viable solution to the item needed.

(4) To D14, D28, and D42: Cooperative development opportunities should include subsystems and technologies as well as projects and systems. An evaluation must be made of the potential for cooperative development in new and existing similar programs. The laboratory (WL/XPI and functional offices) can support evaluation of technology and subsystem development efforts being undertaken by allied nations relative to our acquisition program needs.

(5) To D20B: Review and comments on the draft technical plans.

(6) To D23: Review and comments on the updated technical plans.

(7) To D37B: Assessments of Advanced Technology for Transition.

(8) To D64: Review and comments on draft RFPs.

(9) To D70: Support source selection technical evaluations.

(10) To D76: Provide support to the critical technology demonstrations being planned by the SPO.

10. KEY REFERENCES:

a. AFMC Pamphlet 800-60, "Integrated Weapon System Management (IWSM)," 31 Mar 93.

b. "Guide to the Technology Master Process," 30 Oct 92. OPR: HQ AFMC/ST, WPAFB, OH.

c. ASC Technology Transition Process Critical Process Team Final Report, Jun 93. OPR: WL/XPT, WPAFB, OH.

d. See referenced data sheets.

11. IMPLEMENTATION TOOLS:

a. Process:

(1) TPIPTs: TAA , TIRR, and MADP.

(2) Laboratory Investment Strategy: Spring Reviews, Laboratory Roadmap Reviews, Laboratory Technology Area Plans.

b. Methodology:

(1) Operating command, product center XR: MAA and MNA.

(2) Implementing/Supporting Commands Analysis-based technology needs provide the strongest case for S&T investment. These analyses begin with the Mission Area Assessment and Mission Need Analysis that implement "strategy-to-task" and "task-to-need," respectively. The next step, "need-to-technology," requires consideration of acquisition and sustainment needs. Quality Function Deployment (QFD) is one tool that provides a structured methodology for "need-to-technology" analysis.

12. PLANNING GUIDANCE:

a. DURATION: Activity covers the entire acquisition cycle; critical phases are:

(1) CE and D establishes the technology requirements
(2) Dem Val validates the technology against the application requirements
(3) EMD integrates the technology into the system

b. CONSTRAINTS: The greatest obstacle to overcome is schedule, the lead time required to develop a technology. The time required to identify a specific technology need, initiate a laboratory ATTD effort, and transition a technology can be prohibitive to successful insertion into the program. Identification of needs at the earliest possible time, allowing the labs to plan funding, execute advanced development, and support the acquisition schedule, is critical to technology availability.

c. RESOURCES: Level-of-effort necessary to manage technology transition can vary widely between programs and technologies. Engineering and logistics are the principle participants. The presence of laboratory personnel in the project office can reduce the manpower investment significantly.

d. LESSONS LEARNED:

(1) The rigorous determination and verification of operating command needs/wants/requirements is necessary to identify the capabilities required by the operating command.

(2) Accurate execution of the strategy-to-task, task-to-need, and need-to-technology analyses is critical to identifying the technologies with maximum leverage on program cost and system capability.

(3) Involvement of Systems Engineering at the earliest opportunity assures buy-in and validation of conceptual efforts, easing the transition to Phase 0.

e. BEST PRACTICES: Teaming of lab, program, Development Planning (XR at ASC), Program Development Team (YX at ASC), and Operating Command at the earliest opportunity is the best approach to assure all inputs are considered and understood on the path to providing the product that best meets the customer and acquisition program needs.

f. TRAPS: None Identified

1. **ELEMENT:** D31, TBS 1.1.4.4 (IFC 93-3)

2. **ELEMENT TITLE:** Update Database

3. **ELEMENT OWNERS:** Operating Command, Implementing Command, Product Center Development Planning Directorate (XR) and Program Development SPO (ASC/YX), Industry

4. **ELEMENT STAKEHOLDERS:**

a. Implementing Agencies: Department of Defense (DOD), Secretary of the Air Force (SAF), Implementing Command, Product Center XR and YX (ASC).

b. Supporting Agencies: Air Force Intelligence Support Agency (AFISA), Air Force Studies and Analysis Agency (AFSAA), Laboratories, Industry, Operating Commands.

5. **REQUIREMENT:**

a. Air Force Policy Directive (AFPD) 10-6, Mission Needs and Operational Requirements, 19 Jan 93: This directive requires the implementation of the DOD 5000 series documents, which in turn requires the maintenance of database.

b. AFPD 37-1, Information Management: (On order, upon receiving document, the definition will be constructed).

c. AFPD 63-1, Acquisition System: (On order).

d. AFR 55-43, Management Operations, Test and Evaluation, 29 Jun 90: This regulation describes the support document requirements and the Data Management and Analysis Plan.

e. Department Of Defense Directive (DODD) 5000.1, Defense Acquisition, 23 Feb 91: Establishes a disciplined management approach for acquiring systems and materiel that satisfy the operational user's needs.

f. DODD 8320.1, Data Administration, 26 Sept 90: (On order)

g. MIL-STD-1388-1A, Logistics Support Analysis (LSA), 11 Apr 83: The goal of this standard is a single, uniform approach by the Military Services for conducting activities necessary to cause supportability requirements to be an integral part of system requirements and design, with documentation developed and maintained.

h. MIL-STD-499B, Systems Engineering, Draft: The decision database may be digital, defined by the Government or left open for contractor definition.

i. MIL-STD-1388-2B, DOD Requirements for a Logistics Support Analysis Record, 28 Mar 91: This standard is directed toward improving the cost effectiveness of the generation, maintenance, acquisition, and use of the technical data required to support an LSA program.

j. MIL-STD-1840A, Automated Interchange of Technical Information, 22 Dec 87: The purpose of this standard is to standardize the digital interface between organizations or systems exchanging digital forms of technical information necessary for the logistic support of weapon systems throughout their life cycle.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose of the program database is to provide a central location for the collection and storage of information / data. This information/data will support the Project Team in making decisions that respond to external and internal requirements, (i.e. the information needs of milestone decision authority).

b. Objective: At this point the database is updated using Phase 0 project activities planned since the establishment of the project database (D-15).

7. DESCRIPTION:

a. The database is the information used and generated for integrated requirements and flowdowns, interface constraints and configuration alternatives, verifications, decision criteria, trade study assessments, and any other required documents. It includes physical and mathematical models, computer simulations, layouts, and similar configuration documentation and technical data, as appropriate. To update the database at this time is important, because milestone direction has been received by the project team and incorporated in Phase 0 program plans (D22) and Phase 0 technical plans (D23).

b. An operational database will continue to use MIL-STD-1388, MIL-STD-499B, MIL-STD-1840A, Computer-Aided Acquisition and Logistics Support (CALS), Contractor Integrated Technical Information Service (CITIS), and Integrated Weapon System Management (IWSM). The management information system will continue to provide tools for engineers; share program data with analysts, contractors, and the customer; permit management overview of program data and schedules; and provide paperless delivery, if appropriate, of required data. To conduct Concept Exploration Studies (D37), the database must contain approved Work Statements, the Preliminary Cost and Operational Effectiveness Analysis (COEA) plan, top level systems requirements, approved alternative concepts and operational requirements, as well as plans and schedules to conduct systems engineering activities. Preliminary design (for the Synthesis), and performance and alternative design concepts (for Balance and Control) require complete data.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: This is a continuous activity, intended to be current since established in D15.

b. Exit: The data base will continually be updated throughout the Pre-Milestone 1 process and beyond.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: From Updated Technical Plans (D23):

(1) Updated Work Statements
(2) Preliminary COEA Plans
(3) Preliminary Systems Requirement Document (SRD)
(4) Draft Baseline Concept Description (BCD)
From Updated Phase 0 Plans (D22):
(1) IWSM Master Plan
(2) Acquisition Strategy
Other approved pertinent information since Establish Database (D15)

b. Outputs:

(1) All above inputs are used unaltered as outputs
(2) Data to conduct Concept Exploration Studies (D37)
(a) Work Statements
(b) Preliminary COEA Plan
(c) Other approved pertinent information for successor block activities

10. KEY REFERENCES: (In addition to those listed in Requirements, Paragraph 5)

a. Air Force Instruction (AFI) 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93: Identifies official Air Force information required for decision making and historical purpose and develop a schedule of the information life cycle to describe creation, maintenance, and disposition (AFI 37-123, Management of Records).

b. AFI 10-602, Logistics Support and Readiness Requirements: (On order, upon receiving document, the definition will be written.)

c. AFI 14-303, Threat Support, Acquisition Process: (On order).

d. AFI 16-501, Control and Documentation, Air Force Programs: (On order).

e. AFI 33-105, Information System, Standard Programs: (On order).

f. AFI 37-1, Information Management: (On order).

g. AFI 37-123, Management of Records: Identifies the activities to plan, design, model, synchronize, standardize and control Air Force Corporate data at all echelons.

h. AFI 37-150, Data Administration and Standards Program: (On order).

i. DOD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91: Establishes an integrated framework for translating broadly stated mission needs into stable, affordable acquisition programs that meet the operational user's needs and can be sustained, given projected resource constraints.

j. DOD Manual 5000.2M, Defense Acquisition Management Documentation and Reports, 23 Feb 91: This Manual implements relevant portions of DODD 5000.1 and DODD 5000.2. Specific responsibilities pertaining to major areas are provided in each individual section, as appropriate.

k. Implementing Command: Submit required acquisition program documents. (Defense Planning Guide, Mission Area Assessment, and Mission Needs Analysis, etc.).

l. MIL-HDBK-59A, DOD Computer-Aided Acquisition and Logistic Support (CALS) Program Implementation Guide: The purpose of this military handbook is to provide general information and detailed application guidance for contractually implementing CALS requirements in weapon system and related major equipment procurements.

m. MIL-HDBK-X499-3, Systems Engineering/Configuration Management, Draft: The decision database will provide an audit trail from initially stated needs and requirements to the current description of system products and processes.

n. Secretary of the Air Force (SAF/AAI): SAF/AAI will ensure compliance with DOD Corporate Information Management (CIM) to allow sharing of data with appropriate DOD agencies and other Government agencies.

o. Supporting Command: The Supporting Command will collect and process Integrated Logistic Support (ILS) information in the Logistics Management Information System (LMIS). Outline the actions, support, and documentation needed to establish maintenance requirements for on and off equipment throughout the life of the system. Identify data collection and analysis efforts that will continue after fielding of system equipment.

p. Using /Operating Command: The user will ensure data and management needs are identified. Integrate the Logistics Support Analysis process with the System Requirements Analysis activity. Outline the actions, support, and documentation needed to establish maintenance requirements for on and off equipment throughout the life of the system.

11. IMPLEMENTATION TOOLS:

a. Automated Data Processing (ADP) is available as Government Furnished Property (GFP).

Contact:

Director USAMC Logistic Support Activity
ATTN.: AMXLC-AL
Lexington, KY 40511-5101
606-293-4193 (Mr. David Henderson)

b. Computer-Aided Acquisition and Logistic Support (CALS): The repository of information used and generated at the appropriate level for the acquisition phase of integrated requirements and flowdowns; interface constraints and requirements; functional and performance requirements; system concept; preliminary design and configuration alternatives; details design; verifications; decision criteria; trade study assessments; system, subsystem, and functional capability assessments; and other required documentation.

(a) MIL-HDBK-59A
(b) MIL-STD-1840A

c. Systems and Logistics Integration Capability (SLIC): This is a state-of-the-art, DOD Type III validated, microcomputer based LSAR system that can be used to completely satisfy all MIL-STD-1388-2A requirements with total independence from any other hardware and software.

(a) SLIC I
(b) SLIC II

12. PLANNING GUIDANCE:

a. DURATION: Update the database continuously, throughout the entire life of the product.

b. CONSTRAINTS:

(1) Identify computer resource constraints (examples include language, computer, data base, architecture, or inter-operability constraints).
(2) Database capacity (identify spare memory and throughput requirements, computer memory growth requirements, software partitioning and modular design requirements such as software module size (e.g., no greater than 100 lines of code).
(2) Access capabilities

(3) Security restrictions
(4) Time
(5) Assumptions
(6) Funds
(7) Management Resources
(8) Training

c. RESOURCES:

(1) Facilities
  (a) Classified work space
  (b) Personnel office space and supplies
  (c) Database location
(2) Computer hardware and software programs
  (a) Analytical models
  (b) Program Management Software
(3) Security
  (a) Type of access required
  (b) Provide access for contractors
(4) Manpower
  (a) Security personnel
  (b) Computer systems personnel
  (c) Data management personnel

d. LESSONS LEARNED: (First two lessons transcribed from ALLCARS, the others are referenced).

(1) # 1982, Program Directors: Enhanced quality and quantity of information on the AFAM database. Improvements include additional lessons learned and best practices, updated references, increased number of tools such as software programs, document templates, samples, and courses. (Col. Ferrell, ASC/CYM, DSN 785-2213)

(2) #1344, Schedule Plan For A Source Selection: Develop a detailed plan for the execution of source selection that will aid the flow of data and provide expedient changes to contingencies. All data was computerized on an IBM program called "Super Project." The data were placed in a network to define the internal relationships of activities and resources and a Gantt chart was used to provide schedule suspense dates and serve as a tracking tool. By computerizing the database "what-if" scenarios could be evaluated based on unknown contingencies (i.e., slip of data reviews, modifications to the proposals, personnel conflicts or absences). The database was used as a "living tool" to help manage 200 evaluators, 18 evaluation items, and 7 proposals. (POC will be added at later date).

(3) # 1264, AFLC LMS Target Operating Environment
(4) #1418, Internal Financial Management.
(5) #1888, Program Managers:
(6) # 1982, Program Directors
(7) # 9020, Hardness Surveillance Test Systems (PHSTS)
(8) # 9063, Air Force Electronic Combat Office (AFECO)
(9) # 9115, ASIAC
(10) #9116, Reliability Analysis Center (RAC)

e. BEST PRACTICES: Use MIL-HDBK-59A, DOD CALS Program Implementation Guide, and MIL-STD-1840A, Automated Interchange of Technical Information to control data storage with frequent backups to avoid the loss of data.

f. **TRAPS:** Noncompatible CALS systems have problems with nonstandard terminology used to file or retrieve data.

1. **ELEMENT:** D34, TBS 1.1.1.4 (IFC 93-3)

2. **ELEMENT TITLE:** Develop Phase 0 Contracted Studies Strategy

3. **ELEMENT OWNER(S):** Product Center PK

4. **ELEMENT STAKEHOLDER(S):** Project Manager (PM), Project Contracting Office, Legal Office, Program Executive Officer (PEO) (if identified), Designated Acquisition Commander (DAC), ASC/CYX, SAF/AQC/AQ, AFMC/PK, USAF/XO, Operating Command, and Project Cadre (comprised of functional disciplines, e.g., EN, FM, PK, XR, LG, Labs, etc.).

5. **REQUIREMENT:**

a. AFR 70-14, Acquisition Strategy Panels (ASPs), Aug 92, provides general objectives and policies for ASPs and establishes responsibilities under the PEO and DAC structure.

b. AFMC FAR Sup 5307.1 and AFMCR 800-25, 31 May 89, contain the requirements for when and how to conduct an ASP.

c. FAR 7.1, DFARS 207.3, AFFARS 5307.1, AFMC FAR Sup 5307.1 and ASC FAR Sup 5307.1 all contain requirements on when and how to prepare an Acquisition Plan (AP)

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this activity is to ensure there is a contract strategy -- a plan -- for executing any required Phase 0 contracts. This follows the determination by the PM and the operating command that concept exploration and definition studies will be conducted by a contractor(s) (D35). This contracting strategy will also be used in support of the overall acquisition strategy developed for Phase 0.

b. Objectives: The objective is to develop a draft contracting strategy that fulfills the needs of the project by considering risk, contract method, period of performance, etc. It is also needed to determine what type of contract vehicle will be used for those studies and what will be required in the resultant contract.

7. **DESCRIPTION:**

a. During this phase of the project, the PM and the project cadre are supporting the operating command by planning for Phase 0 (D20a and D20b). This contracting studies strategy will be a part of the overall project planning. The strategy will be used if it is decided to have industry conduct concept exploration and definition studies during Phase 0 that will help lead to a Milestone I approval. This planning and strategy may be addressed during the briefings leading to the Milestone 0 decision and will be updated as required.

b. Once the project cadre has determined the need to contract with one or more contractors who have technical knowledge and capability of the project, the next step is to develop a contracting strategy. Approval of that strategy is obtained by preparing for and conducting an ASP, if required or desired. (The tailorable Integrated Acquisition Strategy Process (IASP) with its roundtables might also be considered to help formulate the strategy.) One major factor involved in preparing the strategy and obtaining approval is the acquisition dollar value for this effort. The value of the project determines the level of strategy approval, and how many contracts can be awarded for contractors to perform the studies. An ASP is conducted for each AFMC program that requires an AP, except for Budget Program Activity Codes (BPACs) 6.1 and 6.2-funded programs that are not applicable to this activity. (The acquisition dollar level and type of program [i.e., major/selected programs, other programs or other contracting] will determine if an AP is required. See the above FAR references for AP requirements and

approval levels.) The ASP is a forum of senior acquisition personnel. The purpose of an ASP is to help the PM formulate an effective acquisition strategy. The PM, with help from project office functionals, the project cadre, is responsible for formulating the strategy, briefing the strategy at the ASP and addressing the recommendations of the ASP. The contract strategy is only one aspect briefed during the ASP which performs a total integrated strategy assessment (technical, programmatic, financial, support and business). Subsequent to the ASP, an AP will be required, depending upon the dollar level of the acquisition(s) and the type of funds available. Two major aspects of the contracting strategy are to determine what type of contract vehicle will be used and whether the action will be competitive or noncompetitive. Depending on many project factors, the strategy may be to issue a new contractual vehicle or use an existing one, (i.e., task order). (An ASP or AP is not needed if a task is being added to an existing contract.) For a new contract, different solicitation types should be studied. Requests for Information (RFI), Requests for Proposals (RFP), Program Research and Development Announcements (PRDAs), and Broad Area Announcements (BAAs) are examples of types that should be explored for use. These will be discussed further in the data sheet for D35. Once the ASP has approved the contracting strategy, the AP can be finalized and started on its approval cycle and a solicitation can be initiated.

c. This initial strategy will be updated after the MS 0 decision (D22).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: This activity can begin when the operating command determines they have an operational need not satisfied by non-materiel solution (C14). The PM then initiates the product center's support of the operating command in their planning for how Phase 0 will be conducted (D20a and 20b). This is the time when the contracting strategy effort is initiated to support the Phase 0 planning.

b. Exit: This effort ends when the initial contracting strategy to support Phase 0 has been approved and becomes a part of the overall initial Phase 0 planning to support the operating command.

9. KEY INPUTS AND OUTPUTS:

a Inputs: The main input needed for this effort is the determination as to the extent to which Industry will be involved and how they will be reimbursed for their efforts. Phase 0 strategy technical alternatives needed to develop the contracting strategy will come as a result of the Phase 0 planning effort being conducted by the PM and project team (D20a). Other technical input required to develop the strategy will be derived from the development of the draft Phase 0 technical plans (D20b). The Industry technical analysis requirements from D20b depend on available technical resources and capability in-house.

b. Outputs: The output is the initial contracting strategy that will include plans for managing the contractor-conducted concept exploration and definition studies and also what type of solicitation and contract will be used to obtain this effort. This strategy will be incorporated in the overall initial Phase 0 strategy for obtaining a Milestone 0 decision (D20a and C14).

10. KEY REFERENCES:. DOD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 5, Section A provides information on acquisition planning and strategy. Change 1 to DODI 5000.2 is dated 10 Mar 93.

11. IMPLEMENTATION TOOLS:

a. ASC/CYX "A Schedule for Acquisition Planning": Initial Acquisition and Strategy Development Through Source Selection," contains guidance on acquisition planning and ASPs.

b. HQ AFSC Request for Proposal Process Guide. This document contains sections which include information on ASPs.

c. ASC/CYX has guidance for conducting ASPs. Contact them at DSN 785-7073.

12. PLANNING GUIDANCE:

a. DURATION: This entire contracting strategy process from the time it is decided to obtain contractor conducted concept exploration and definition studies until the strategy is approved could take anywhere from one month to more than 6 months, depending on the complexity and dollar amount of the project. For lower dollar and visibility programs, it can take anywhere from 1 to 3 months from the time the contracting strategy is initiated. For potential Defense Acquisition Board (DAB) programs, it can take more than 6 months and possibly even a year.

b. CONSTRAINTS:

(1) A decision needs to be made whether it is necessary or advantageous to obtain contractor conducted concept exploration and definition studies (D20a). If the contractor studies will not be obtained, there is no need for a contracting strategy.

(2) The ASP needs to be planned around when the approval authority will be available to hear the ASP briefing and make a decision on the strategy. Also, included in this is the difficulty in scheduling the ASP members.

c. RESOURCES: Personnel resources include personnel in the project cadre, plus clerical assistance, to help plan the contracting strategy and prepare for the ASP. In addition, personnel who are members of the ASP will be required when the briefing is presented to that panel. The ASP is usually made up of senior functional personnel (greybeards), including the legal office, the using activity and various other personnel.

d. LESSONS LEARNED: ASC/CYX (DSN 785-7073) provides regular updates of significant lessons learned resulting from completed ASPs. It is advisable that you talk with them prior to initiating actions for your ASP.

e. BEST PRACTICES:

(1) The ASP is an important element of successful acquisition planning which should be an iterative process led by the Project Manager. It involves teamwork by the functional offices, project office, Operating Command, field activities, Headquarters, DAC and PEO (if applicable), as required.

(2) Prebriefings of the briefing prepared for the ASP should be conducted whenever feasible.

(3) HQ AFMC and field activities are responsible for establishing an ongoing activity called the ASP secretariat. This secretariat (ASC/CYX, at ASC) helps the chairperson oversee and monitor all ASP activities and provides scheduling support and meeting minutes as described in AFMCR 800-25.

(4) It is important that the ASP be scheduled early in the acquisition planning process. The ASP should occur when the contracting strategy is organized.

f. TRAPS:

(1) One trap is not scheduling the ASP early enough in the project acquisition. It can take a long time to schedule an ASP when all the members can attend, and could delay the project if not held in a timely manner. It is suggested that the ASP be held prior to the Air Force Systems Acquisition Review Council (AFSARC) (B9) or Milestone Review (A9).

(2) Depending on the situation, there may be some problems using existing task orders for this effort. This may not allow adequate competition (which might be illegal under the Competition in Contracting Act (CICA)) and could keep the project from receiving beneficial technical information from other competing offerors. The PM and contracts representative should work closely with the Small Business and Competition Advocate offices to ensure all acceptable industry resources are utilized.

1. **ELEMENT:** D35, TBS 1.2.1.1 (IFC 93-3)

2. **ELEMENT TITLE:** Procure Contract Studies

3. **ELEMENT OWNER(S):** ASC/PKC, ASC/CYX, Project Manager and Project Team Members

4. **ELEMENT STAKEHOLDER(S):** Project Director, Project Management Office, Project Contracting Office, Legal Office, Program Executive Officer (PEO) (if identified), and ASC/CYX.

5. **REQUIREMENT:**

a. DODI 5000.2, Part 10, Section B, provides information for selection of contractual sources and Section C provides information on acquisition streamlining.

b. AF Sup. 1/DODI 5000.2, Part 10B, supplements information on selection of contractual sources.

c. FAR 5.1, DFARS 205, AFFARS 5305, AFMC FAR Sup 5305 and ASC FAR Sup 5305 contain the requirements for disseminating information (publicizing contract actions).

d. FAR 9.1, DFARS 209, AFFARS 5309, AFMC FAR Sup 5309 and ASC FAR Sup 5309 describe policies for determining whether prospective contractors are responsible.

e. FAR 15.1, DFARS 215, AFFARS 5315, AFMC FAR Sup 5315 and ASC FAR Sup 5315 describe methods of contracting by negotiations.

f. FAR 16.1, DFARS 216, AFFARS 5316, AFMC FAR Sup 5316 and ASC FAR Sup 5316 describe types of contracts.

g. AFR 70-15 and 70-30 contain the requirements for source selection procedures.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: This Phase 0 contractual activity is required when the project director/manager determines a contractor-performed System Requirements Analysis (SRA) (D37) is required to aid the project.

b. Objectives: The objective is to provide the contractual vehicle, as directed by the contracting strategy (D34) and as reviewed and updated (D22), with which the contractor(s) may deliver SRA information.

7. **DESCRIPTION:** There are two methods which may be utilized to provide the necessary contractual vehicle. The first is to create a specific contractual vehicle(s) for the requirement at hand, using the competitive RFP method. This is to be used when no existing contractual vehicle fits the identified requirement. The second method is to use an existing contractual vehicle by modifying the statement of work (SOW) or contracting for an additional task. The decision for which method to use should be a part of the contracting strategy (D34).

Caution: The contract strategy was developed for Milestone 0 decision, which may have been several months prior to this point in Phase 0. This strategy should have been revisited and reviewed prior to proceeding with this activity (D22).

Competitive RFP: This Phase 0 activity can be divided into the following units: a) source selection plan (SSP), b) draft request for proposal (DRFP), c) request for proposal (RFP), and d) source selection.

(a) SSP - An SSP is required for all competitive acquisitions conducted under AFR 70-15 or 70-30. It documents the source selection strategy; it is the blueprint for conducting the source selection; it is the approved plan for conducting the evaluation and analysis of proposals. The Project/Program Manager (PM) is responsible for the SSP. The SSP is submitted to the source selection authority (SSA) for review and approval. It is a key document that specifies how the source selection will be conducted. The SSP consists of two parts. Part one describes the organization, membership and responsibilities of the team. Part two identifies the evaluation criteria and detailed procedures for proposal evaluation.

Schedule - The SSP should be written after the acquisition strategy panel (ASP) is held and should reflect the decisions of the ASP. The SSP is prepared at the same time that the contracting strategy plan is being written. The draft SSP should be completed before DRFP release and the SSP must be approved before the RFP is released.

(b) DRFP - The DRFP is a tool used in competitive acquisitions to obtain industry feedback on the planned acquisition. DRFPs are mandatory for all competitive contracts exceeding $25 million and encouraged for use for all other procurements. The goal of the DRFP is to produce a more effective RFP and a better contract by allowing industry time to comment on the RFP before it is finalized. The DRFP should reduce proposal preparation time and evaluation time by promoting a clearer understanding by the bidders of the requirements. The sections of the DRFP are as follows:

Section	Title
A	Contract Form
B	Supplies/Services and Prices
C	Descriptions/Specifications/Statement of Work (SOW)
D	Packaging and Marking Requirements
E	Inspection and Acceptance Requirements
F	Deliveries or Performance
G	Contract Administration Data
H	Special Provisions
I	General Provisions
J	List of Documents, Exhibits, and Attachments
K	Representations, Certifications, and Other Statements of Offeror
L	Instructions/Conditions, and Notices to Offeror
M	Evaluation Factors For Award

All of these sections are explained in greater detail in the AFSC RFP Process Guide.

Schedule - Preparation of the DRFP should begin with the decision of the ASP and will be done concurrently with the writing of the SSP. The DRFP should not be released until the SSP is in draft form. A period of 30 days should be allowed for comments before the RFP is revised. All comments are formally addressed by the Procuring Contracting Officer (PCO) either by letter or in a bidders conference. Any major changes to the DRFP may require a second DRFP.

(c) RFP - The RFP is the document that communicates the government's requirements to industry. The RFP should look very much like the DRFP released earlier for industry comment. The release of the RFP is authorized by the SSA which usually preceded by JAG and other internal ASC reviews. For major programs, a defense acquisition executive (DAE) review may be required. All major programs are required to notify the SAF/AQC and DAE no less than 30 days before a RFP is released. The RFP should clearly highlight those changes that occurred since the DRFP was issued. Offerors frequently prepare their proposals from the DRFP and use the RFP for a quick last review before seeking corporate approval of their proposal.

Schedule - The RFP release starts the formal source selection.

(d) Source Selection - A source selection is a method to choose from a number of qualified sources available. The objective of the source selection is to select the source whose proposal has the highest degree of credibility and whose performance can be expected to best meet the government's requirements within reasonable cost. Source selection execution at ASC is managed by ASC/CYX. This organization provides training, facilities, and guidance for source selection beginning with acquisition strategy through contract award. The SSA is the official designated to direct the source selection process and make the final source selection decision. Who the SSA is, is determined by the size of the program. The ASC supplements to AFR 70-15 and 70-30 should be reviewed for the latest guidance on how to determine a programs size. A description of the typical source selection organization is available from ASC/CYX. The source selection organization supports the SSA and actually performs the evaluations of offerors proposals. It is usually streamlined for smaller programs.

Schedule - ASC policy is to complete all competitively negotiated acquisitions in both an effective and efficient manner. A schedule goal of 120 days from issue of the RFP to the SSA decision is part of this policy. Schedule within this 120 days can be modified as appropriate.

The majority of the acquisitions which will happen at this point in Phase 0 will be less-than-major actions. Generally, smaller dollar contracting actions must follow the same process as large ones but with fewer and lower level oversight review groups. There will be no requirement to notify the DAE 30 days prior to RFP release. Also, the contract reviews will be done locally and the need for a DRFP is usually waived. Small dollar source selections fall under AFR 70-30 rather that 70-15; the organization structure is streamlined (smaller), and the SSA will likely be from the organization. The overall result is a shorter schedule. Typical study contracts of less than $2.0M from ASP approval to contract award could take as little as 90 days. As the value of the end contract(s) increases, so too does the time necessary to complete the acquisition.

Existing Contractual Vehicle: If it has been decided during the contract strategy process (D34 and D22) that an existing contractual vehicle can meet the identified requirement, the above RFP process is not required. To use the existing contractual vehicle, the owner of that document must be contacted, and local policies and procedures must be followed to place the Phase 0 requirement on contract. As a minimum, a complete PR package (including the SOW modification or task order description) must be provided to the owner of the contractual vehicle. Typical contract types which would be available at this point in Phase 0 include time and material, labor hours, and cost reimbursement. It is unlikely that fixed price contracts would be used due to the lack of defined requirements this early in Phase 0.

(a) Time and Material: These contracts are used when it is not possible initially to estimate the extent or duration of work, e.g. engineering and design services.

(b) Labor Hour: Variant of time and material contracts in that materials are not furnished by the contractor.
The above two types of contracts are not commonly used in research and development efforts and care should be taken to ensure that if used, the identified Phase 0 effort is within the scope of the existing contract.

(c) Cost Reimbursment: This family of contract types permits contracting for efforts that might otherwise present too great a risk to contractors. These contracts are suitable for use when uncertainties involved in contract performance do not permit costs to be estimated with sufficient accuracy to use any type of fixed-price contract. Common uses include the performance of research or preliminary exploration or study and the level of effort required is unknown.

Cost reimbursement contracts include:

(1) Cost: Research and development with nonprofit organizations or educational institutions. The contractor is reimbursed for all allowable costs.

(2) Cost Share: Development or research projects jointly sponsored by Government and contractor where the contractor anticipates commercial benefit in lieu of fee under the contract.

(3) Cost Plus Award Fee (CPAF): An award fee is earned based upon a judgemental evaluation by the Government, sufficient to provide motivation for excellence in contract performance. Contract completion is desired but performance is not susceptible to finite measurement.

(4) Cost Plus Incentive Fee (CPIF): This contract provides for an initially negotiated fee to be adjusted later by a formula based on the relationship of total allowable costs to total target costs. These contracts are appropriate for development and test programs where the Government has established its performance objectives.

(5) Cost Plus Fixed Fee (CPFF): This type of contract is most commonly used in research and development where the level of effort is not known and the contractor's performance cannot be subjectively evaluated. The contractor receives a fixed fee regardless of the actual costs incurred during performance.

(6)"Task Order": Task ordering arrangements are CPFF term-type contracts. The level-of-effort must be specified in person-hours, and a fixed fee must be negotiated on the basic contract. Task ordering arrangements are appropriate for those instances in which a defined need exists for contractual support, but the precise nature, quantity or schedule of the effort required cannot be determined in advance, but can be described in general terms. Contract requirements are written as definitively as possible from the onset, and not tailored to any particular approach.

Caution: These descriptions have been provided for information only, to help determine the steps needed to place the identified requirement on contract. The selection of an existing contract is <u>not</u> based on the type of contract, but rather if the identified Phase 0 requirement is within the scope of the current requirements of that existing contract.

Schedule: A modification to an existing studies contract (other than a task order contract) can take nearly as long as an RFP. The steps required are as follows:

1. Prepare a purchase request (PR) with related documents, (e.g. SOW modification),
2. solicite the requirement to the contractor,
3. allow the contractor time to prepare and submit a proposal,
4. after receipt, the proposal is technically reviewed and negotiated,
5. and finally, the contract is modified, reviewed and signed.

Depending on the complexity of the requirement, this process can take from 60 to 120 days, with 90 days as typical. If an existing task order contract is used, it may take as little as 30 days to place a new task on contract. Although all of the above steps must also be followed to issue a task order, the difference is that the contract has been specifically set up to accept defined tasks during period of performance stated in the contract. Other cost reimbursement contracts have the effort defined at the beginning of the contract and modifying the effort is restricted.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The studies procurement activity for this stage of the project does not usually start until the contracting strategy has been approved (D34 and D22).

b. Exit: This effort ends when the Concept Exploration studies contract(s) are awarded.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The input data needed for this task is the acquisition strategy (D22) for the project and industry involvement (such as DRFP)(Industry Monitor and/or Participate in Government Programs

Thru IR&D, RFIs, RFPs, or Other Means). This information will provide the main points to determine the method of contracting and help in defining the requirements and duration of effort.

b. Outputs: Output from this effort will provide the contractual vehicle to provide the studies for analysis (D37).

10. KEY REFERENCES: In addition to the documents listed in the above Requirements section, references include ASC/CYXs "A Schedule for Acquisition Planning: Initial Acquisition and Strategy Development Through Source Selection," HQ AFSC Request for Proposal Process Guide, and current ASC/PK policy letters.

11. IMPLEMENTATION TOOLS: ASC/CYX has guidance, facilities, and computer resources to assist in RFP preparation and source selection.

12. PLANNING GUIDANCE:

a. DURATION: This entire acquisition action can take up to 1 year from draft source selection plan to award of the contract. This all depends on the complexity and dollar amount of the project and whether a DRFP is utilized or not. Preparation and approval of the source selection plan and concurrently the writing and release of the DRFP can take from 60 to 160 days. Finalizing the RFP and obtaining approval for release may take up to 90 days. The standard time for source selection (from RFP release to contract award) can be no more than 120 days. This time can be reduced if an existing contractual vehicle is used. If a contract is used that must have the SOW modified, the average time will be 90 days. The complexity of the effort will cause the time to increase. If a task order type contract is used the amount of time can be reduced to 30 days. This is dependent upon the requirement being ready to execute and the full cooperation from the contractor.

b. CONSTRAINTS: The FAR and other referenced regulations have placed minimum notification times for reviews and publications. On all major programs SAF/AQC and DAE must be notified no less than 30 days before an RFP is released. A Notice of Contract Action (NOCA) must be published in the Commerce Business Daily (CBD) at least 15 days before RFP release. It is recommended that the contractors be given a minimum of 30 days to provide comments on a DRFP before the RFP is issued. The minimum allowed time for receipt of proposals is 30 days from date of issuance of an RFP, (45 days for R&D actions).

An audit may be required for either an RFP or a modification to an existing contract. Audits are required for all efforts $500,000 or more. The CO has the authority to waive audits up to $2.0m if adequate pricing information is available. If an audit is required, the auditor has 60 days to provide a report.

Constraints on task orders may vary based on the basic contract but the following are common:

(1). shall not exceed $500K and/or a duration of 12 months,
(2). shall not contain more than 50% subcontracting,
(3). shall not be used to purchase equipment unless necessary to accomplish R & D (i.e., one-of-a-kind prototype).

c. RESOURCES: The composition of the source selection team depends upon the level of complexity and perceived risks involved. All members involved with the development of the contracting strategy and the updating of that strategy (D34 and D22) should be included on the team. Additional personnel should include a procurement clerk and buyer, if not already involved, and other functional experts as needed for writing of the RFP and as reviewers of proposals. ASC/CYX should be contacted to schedule use of their source selection facility and RFP development computer resources, (as needed).

If an existing contractual vehicle is used, the resources provided will be dependent on the owner of the contract. Those resources should be augmented in the area of project officer (requirements definition) and any other functional areas peculiar to the effort.

d. LESSONS LEARNED: ASC/CYX maintains a lessons learned date base for all source selections held at ASC. Regular updates of significant lessons learned are constantly added to the file. This file should be accessed as soon as a source selection is contemplated.

One of the most common mistakes made during the RFP process is not clearly defining the requirement. Extra care and time should be taken when defining the requirement as any changes after the source selection process has started will impact the schedule or could cause the source selection to be cancelled and restarted.

If an existing contractual vehicle is used, extreme care should be taken to make sure that the proposed additional effort is within the scope of the current SOW or that the requested task order is within the scope of the basic contract. A change to an existing contract is any alteration within the contract scope, in any one of the following:

(1). Drawings, designs or specifications where the supplies to be furnished are to be specifically manufactured for the government,
(2). Method of shipment or packing, or
(3). Place of delivery.

e. BEST PRACTICES: The ASC/CYX lessons learned files should be reviewed for any best practices which could apply to each studies procurement activity.

f. TRAPS: Schedule is very critical to this activity. Additional time should be kept in management reserve for unexpected delays, (i.e. reviews which take longer than expected, modifications to the RFP).

1. ELEMENT: D37, TBS 1.2.1.2 (IFC Revision 93-3)

2. ELEMENT TITLE: Conduct Concept Exploration Studies

3. ELEMENT OWNER(S): ASC/YX

4. ELEMENT STAKEHOLDER(S): Operating Command, Air Force Materiel Command (AFMC), Aeronautical Systems Center (ASC), Product Center XRs, Industry, Laboratories, and Other Government Agencies.

5. REQUIREMENT:

a. DoDI 5000.2, Defense Acquisition Management Policies and Procedures, Part 6, Section A and Part 11, Section A.

b. MIL-STD-499B, Systems Engineering, Section 3.8

The above documents outline the need to conduct detail technical analyses to identify and evaluate alternative concepts that satisfy the validated need and the direction in the Acquisition Decision Memorandum (ADM) and Program Management Directive (PMD).

6. PURPOSE/OBJECTIVES:

a. Purpose: Concept exploration studies are the initial technical activities for Phase 0 for evaluating and transforming evolving operational requirements into system level requirements (technical requirements) and continuing the evaluation and definition of alternative concepts identified in Pre-Milestone 0 activities and approved for continued study in the ADM (element A9) and the PMD (element B10).

b. Objectives: Concept exploration studies focus on producing the technical information required for requirements generation, further development and evaluation of the alternative concepts and for generating performance data for use in conducting follow-on Program Alternatives Analysis, element D46 and Cost and Operational Effectiveness Analysis (COEA), element D48.

7. DESCRIPTION:

a. The Process: The contemporary Systems Engineering Process (SEP) outlined in MIL-STD-499B and other Systems Engineering documents (see Key References, Para. 10) provides a framework within which to accomplish concept exploration studies. The SEP provides a disciplined approach by which the acquisition community (project cadre) conducts all technical activities necessary to evaluate evolving operational requirements, identify and allocate enabling system functions, develop and evaluate alternative concepts satisfying those functions and assess system performance relative to the Operating Command's needs.

b. The Focus: The concept exploration studies provide the technical basis for supporting requirements generation activities and linking those activities to alternative concept exploration and evaluation. Critical system functions, indicated by operational requirement inputs, are identified and resolved to greater detail and related to (satisfied by) specific design concepts (technical characteristics). The studies focus on evaluating evolving operational requirements, system functions and associated system technical characteristics relative to cost, schedule and technical parameters developed to assess concept performance. The objectives of the concept exploration studies include:

(1) supporting verification (validation) of evolving operational requirements, tracing their origins to mission needs

(2) identification and sequencing of system level functions that support the validated operational requirements (functional identification)

(3) definition and allocation of those functions (requirements allocation) to levels of detail sufficient to develop (and evaluate) functional architectures

(4) development of alternative concepts (gross level system definition) and identification of technology needs and risks,

(5) and evaluation of alternative systems for their ability to accomplish indicated functions, satisfy operational requirements and ultimately mission needs.

This last objective is satisfied through trade studies that employ Measures Of Effectiveness and Technical Parameters in the evaluation of the system performance (considering the critical system elements: equipment, facilities, personnel, data, and software) for the primary life cycle phases (development, manufacturing, verification, deployment, operations, support, training, and disposal).

c. Initiation and Execution of Concept Exploration Studies: Concept exploration studies are initiated with a close examination of validated needs and preliminary operational requirements (Operational Requirements Document, ORD). These input requirements are evaluated against a set of alternative concepts developed prior to Pre-Milestone 0 activities and approved for further study during Phase 0. Systems functions relating operational requirements to design solutions (alternative concepts) are updated/developed from previous study activities and evaluated through a process known as system requirements analysis. The alternative concepts under consideration continue to be described in greater detail, commensurate with the level of definition of the system functions and evaluated for their suitability (effectiveness) through conceptual design studies (design synthesis). The interrelationship between the needs, operational requirements and technical characteristics (system requirements) evaluated in the various concepts are compared against pre-established measures of merit and technical (performance) parameters to assess the effectiveness of the concepts under consideration and provide insight into additional study opportunities, technology requirements and risks (balance and control). The following discussion describes the three major components of the studies activity which contribute to the development of system requirements and definition of viable alternative concepts for evaluation in follow-on alternatives analysis (Conduct Program Alternatives Analysis, Element D46 and COEA, Element D48).

(1) Requirements Analysis: The focus of the requirements analysis conducted during concept exploration studies is on identifying and defining functions (functional requirements) associated with operational requirements (available to this activity from element C19, Develop Draft ORD) and allocating those functions to system level technical characteristics. Requirements analysis can be viewed as a two step process aimed at relating operational requirements to viable design concepts (described in a work breakdown structure) via system functional descriptions (represented in a functional architecture). The requirements analysis activity serves as the principle link between the operational command activities (mission need statement preparation and operational requirements definition) and the developer's task of identifying and evaluating viable conceptual design solutions. The requirements are derived for the key life cycle phases and address critical functions including supportability, maintainability, deployability, survivability, and training. The process of generating the system requirements is highly interactive with the development of operational requirements; definition of each is influenced by the analyses conducted in the conceptual design and balance and control activities. A variety of analytical methods and concepts are applied in identifying and allocating functions to lower levels and consequently defining system technical characteristics more precisely.

(a) Functional analysis and allocation is a principle component of requirements analysis and involves the identification and evaluation of top level functions and subfunctions meeting stated operational requirements for a variety of alternative concepts. Functional Flow Block Diagrams (FFBDs) are used to demonstrate the interrelationships of each function and associated subfunctions with one another and the system. Time Line Sheets (TLSs) are used to represent functional sequencing and time critical relationships. The process of defining functions at lower levels of detail is accomplished by the Requirements Allocation Sheet (RAS) which has three principle purposes: to record performance requirements established for each function during synthesis, to show the allocation of functional requirements to individual system elements or combinations of elements and to derive the functionally

oriented data used in describing the system. An output of the process that identifies multiple levels of functions (requirements allocation) and their relationships is commonly referred to as the functional architecture. The functional architecture is useful for identifying/refining design concepts and serves as a baseline for assessing functionality and for conducting trades on performance (functions, cost, schedule, risk), for assessing the feasibility of achieving the requirements and establishing/confirming the validity of each design. System level requirements established (informally) during Pre-Milestone 0 activities are formally recognized, updated and consolidated in a preliminary Systems Requirements Document (SRD) as a result of these analyses.

(2) Conceptual Design (Synthesis): The synthesis activity produces conceptual designs to implement evolving functional architectures and provides information for evaluating the capability of those designs to satisfy evolving system requirements (contained in the SRD) and operational requirements (contained in the ORD). Conceptual design studies address the total system (system elements) in the context of the life cycle phases and develop the alternative designs to a level of detail to support:

(a) cost schedule and performance evaluations,

(b) implementation of a risk management plan (risk identification, evaluation and control),

(c) identification of critical technology requirements (including products, processes and materials).

Two widely used tools to accomplish the synthesis of design concepts are the Concept Description Sheet (CDS) and the Schematic Block Diagram (SBD). The CDS is used to collect performance requirements and constraints (identified in functional analysis) and describe technical characteristics that satisfy those requirements. It conveys a gross level of design demonstrating compliance with the allocated requirements, time line sheets and the functional flow block diagram. The SBD serves as the basis for models of the evolving system and:

(d) depicts a complete response to the functional requirements,

(e) depicts compatibility between elements of the system and interfacing systems/subsystems

(f) provides traceability between system elements and their functional origin and

(g) provides a mechanism for complete and comprehensive change control (i.e. the SBD can be used later (in element D37B, Conduct Concept Definition for Preferred Alternatives) to develop the Interface Control Documents, ICDs) for each design concept.

(h) functions that are not well defined and/or cannot be completely described by physical models are identified for further evaluation by a technology development activity (output to element D43, Assess Technology Needs).

(3) Balance & Control describes the set of activities associated with evaluating the derived system requirements, assessing the performance of the alternative design concepts under consideration and formulating recommendations regarding the most promising alternatives. This evaluation and decision activity is supported through trade studies (trade-off analyses) and deals with issues pertaining to risk management, configuration management, technology programs and plans, manufacturing technologies, environmental management and performance-based progress measurement activities. The analyses accomplished at this point in the process also identifies alternatives that represent less than 100% solutions and the degree of shortfalls.

(a) Trade studies are conducted on each alternative to: 1) establish functional requirements and technical characteristics, 2) evaluate the resulting functional architectures, 3) examine alternative technology strategies and risk abatement approaches, and 4) evaluate gross levels of design to support identification of preferred products and processes.

(b) Risk management activities include identifying and quantifying technical risk in terms of cost, schedule, and performance for each alternative concept under study. Technology application risks (products and processes) are identified and quantified at a level commensurate with the level of detail for each concept under consideration. The risks associated with interface characteristics of the functional architecture (both internal and external) are also quantified. Risk control plans are

developed/updated as the designs are iterated and include strategies and concept specific risk abatement activities.

(c) Configuration management activities include developing preliminary configuration and data management plans and supporting continuing development of the System Requirements Document (SRD) and Baseline Concept Descriptions (BCDs). In support of follow-on concept definition activity (element D37B), system characteristics will evolve sufficiently to warrant creation of Interface Control Working Groups (ICWGs) for coordinating systems engineering activities across system and subsystem interfaces.

(d) Critical (existing) technology capabilities are evaluated during the concept explorations studies for their potential application to the evolving systems and critical technology shortfalls (enabling technologies) are identified. Continuous technical interchange between the project cadre and laboratories and industry offering enabling technologies are necessary in order to assess the viability of some of the high risk concepts being explored and provide guidance regarding potential future technology investments. Element D43, Assess Technology Needs transforms system requirements judged to be unachievable with current technologies and characterizes those deficiencies in terms of technology needs for investment by the laboratories.

(e) Manufacturing Capabilities Requirements (MCR) is a process (tool) used to identify and evaluate manufacturing technologies, product and process characteristics and industrial base capabilities deemed necessary for system development and support. This assessment reviews in detail, each alternative concept under consideration and evaluates the impact from materials, components, tooling and equipment and processing techniques. The MCR assessment serves as basis for developing program manufacturing strategy and risk reduction approaches; these are updated as the program and concepts mature.

(f) Environmental Management is evolving as a major consideration for weapon system acquisition and requires the development of an environmental management strategy and plans. Standards for the use of hazardous materials and pollutants continue to be tightened and represent a major design consideration affecting system performance throughout its life cycle. Alternative design concepts and the driving system characteristics must be evaluated against existing and projected environmental standards early, to address design, development, testing, deployment, and supportability challenges posed by these standards.

(g) A Logistics Support Analysis Strategy (LSAS) informally drafted in Pre-Milestone 0 activities and formalized in the plans update at the beginning of Phase 0 (element D23, Update Phase 0 Technical Plans) serves as a basis for assessing supportability (operability, maintainability, training, management) requirements (objectives) during the concept exploration studies. The principle focus of the strategy includes support objectives, goals, thresholds, design and support criteria, support concepts (logistics tail), maintenance concepts, training concepts, staffing (personnel) and target improvements over existing systems. An early version of the Integrated Logistics Support Plan (ILSP), which serves as a road map for implementation of the LSAS is also developed concurrent with evolution of the operational requirements. The supportability function addresses those tasks, actions, activities, and associated system elements which facilitate operations maintenance, logistics (and training) and materiel management. The support function as described in the ILSP, provides definition for tasks, equipment, skills, personnel, facilities, materials, services, supplies, and procedures required to ensure adequate system performance.

(h) For each alternative concept under consideration, technology assessments are conducted to identify critical technologies to the level of definition of each concept. These critical technologies are evaluated against what is currently available or projected to be available. Shortfalls are identified as technology needs (inputs to Assess Technology Needs, element D43) for potential addition to government laboratories' and industrial base research and development activities. This activity requires a sustained interface between the project team, government laboratories, product centers

(across all services) and industry and includes a consideration for Non-developmental Items (element D27) and Cooperative Development Programs (element D28).

(i) Effectiveness analysis is a principle element of the balance and control activity, providing qualitative and quantitative ratings on the performance of the alternative concepts under consideration. Predetermined performance metrics, referred to as Measures Of Effectiveness (MOEs) serve as benchmarks against which alternative concepts operational capabilities are appraised. Potential sources of inputs for developing MOEs for use in the evaluation activity include selection criteria employed during Pre-Milestone 0 concept studies and analysis, the Mission Need Statement and Milestone 0 decision documentation (including Acquisition Decision Memorandum, ADM and Program Management Directive, PMD). The focus is on the total system (equipment, facilities, personnel, data and software) and effectiveness is assessed throughout the life cycle (development, manufacturing, verification, deployment, operations, support, training and disposal phases). Subsequent iterations through requirements analyses and design synthesis are driven by the results of the effectiveness analysis.

(j) Performance based progress management describes the underlying philosophy for the contemporary systems engineering process and involves the development and application of event driven milestones. This is a major consideration during balance and control activities and provides specific exit criteria for concept exploration studies. Updates to the Systems Engineering Management Plan (SEMP) and Systems Engineering Master Schedule (SEMS) are accomplished as a part of the balance and control activities. Specific criteria developed and documented in the SEMS is used as a basis for determining when each design concept has been defined to the necessary level of detail and characterizes the performance of each concept as measured by predetermined Technical Parameters (TPs) evaluated on a continuing basis through Technical Performance Measurement (TPM). Technical parameters are a select set of system technical metrics chosen by management to track development progress; TPs are identified through and support risk analyses, contract specifications and contracting strategy. The process of continuously assessing the degree of anticipated and actual achievement of TPs is referred to as TPM. Technical performance measurement provides insight into design deficiencies and provides an indication of the potential impact on system level requirements. The TPM process provides visibility into actual versus planned performance, early detection or prediction of problems which require management attention and an assessment of the program impact resulting from proposed change. alternatives.

(k) The trade study activities culminate in the publication of Trade Study Reports (TSRs) which identify and characterize promising concepts, document the results of significant trades, identify study assumptions and constraints, provide an assessment of concept risks and methods of abatement and document rationale used in the decision process.

d. Study Progress and Conclusion (Process Iteration): The performance based progress management process referenced in 7.c.(3)(g), and implemented via the SEMS serves as a basis for evaluating progress and establishing when the studies should be brought to a conclusion. The completed trade study reports, are a principle component of the data package produced during concept exploration studies and forwarded to the Alternative Systems Review (ASR), element D45. This review evaluates the content of those reports, reviews the results of the studies in the context of the exit criteria established in the SEMS and validates the data generated. Further concept refinement (to the system subcomponent level) will be provided on a preferred set of alternatives evaluated in element D37B, Conduct Concept Definition for Preferred Alternatives.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Concept exploration studies can be initiated once Phase 0 technical and programmatic plans have been updated and approved:

(1) Work statements for Phase 0 are current.
(2) Preliminary Cost and Operational Effectiveness Analysis (COEA) plan is drafted.

(3) Initial, top level operational and system requirements must be identified and documented

(a) Draft Operational Requirements Document (ORD1), including preliminary Requirements Correlation Matrix data (operational objectives and threshold values for significant operational characteristics must be available).

(b) A draft System Requirements Document (SRD): The data developed in support of the Mission Needs Analysis conducted during Pre-Milestone 0 activities represents the principle inputs to the first draft of the SRD.

(4) An initial Baseline Concept Description is prepared/updated for each alternative concept to be studied.

(5) A draft Systems Engineering Management Plan and Systems Engineering Master Schedule is prepared by the government project team.

(6) The contracting strategy (vehicle) and budgetary requirements to support contracted studies must be satisfied.

b. Exit: Concept Exploration Studies are concluded once it has been established that the project milestones identified in the SEMS have been met, that all technical plans have been updated (including the SEMS) and support the SEMP and that the developing and operating command are satisfied with the information (data) produced by this activity. A formal assessment (and decision to proceed) will be accomplished during the Alternative Systems Review (ASR), element D45.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Mission Need Statement: Provides a frame of reference within which to assess the relevance of the operational requirements and consequently the adequacy of the system requirements being generated.

(2) Draft ORD1: Establishes operational objectives and thresholds for use in identifying functions and corresponding system level requirements.

(3) Draft SRD: Identifies technical characteristics for continuing functional analysis, development of technical characteristics and definition and evaluation of alternative concepts and enabling technologies.

(4) Draft SEMP/SEMS: The SEMP provides information on the overall systems engineering plan for the program (project) and the SEMS provides specific event driven milestones and performance based technical parameters against which to evaluate progress made in the studies.

(5) Draft BCD: A draft BCD for each concept should be available to document evolving requirements, technical characteristics and design features.

(6) Contracting Strategy (contracting vehicle): A contracting vehicle must be identified and enforceable for contracted concept exploration studies.

(7) Task descriptions (Statements Of Work, SOWs) for studies must be identified and supported by a contracting strategy (vehicle).

b. Outputs:

(1) Functional architecture for each alternative conceptual design.
(2) Updated Baseline Concept Descriptions for each concept.
(3) Critical technologies list.
(4) Updated System Requirements Document.
(5) Concept Risk Assessments addressing (products and processes, system performance, schedule and cost).
(6) Trade Study Report summarizing results of concept exploration activities.
(7) Source Data for Updating Technical Documentation: SEMP, SEMS, LSAS, MCR.
(8) Other Data (Documentation) including:

(a) Functional Analysis Data: FFBDs, TLs, CDSs, SBDs
(b) Draft specification tree
(c) Initial Work Breakdown Structures (WBSs)
(d) Initial facility requirements and processes documentation.

10. KEY REFERENCES: MIL-HDBK-499-3, Systems Engineering/Configuration Management Guide for Life Cycle Management, Sections C-5 through C-13, provides an overview of one approach to preparing for and conducting concept exploration studies. The Defense Systems Management College (DSMC) Systems Engineering manual describes classic system engineering activities and provides a framework within which to conduct the studies and document the information. The AFMC Acquisition Risk Management Guide, 20 Aug 92 provides comprehensive guidance on risk management.

11. IMPLEMENTATION TOOLS: Several tools are identified in Para. 7 for accomplishing the tasks in this element. A summary of these tools are listed here along with a brief description of their use:

a. Concept Design Sheet: Used to collect performance requirements and constraints (identified in functional analysis) and describe technical approaches for satisfying those requirements.
b. Functional Architecture: Process of arranging functions/subfunctions in a hierarchy, showing internal and external functional and physical interfaces.
c. Functional Flow Block Diagram: Layered matrices showing the sequential interface relationships for the functions in a system.
d. Interface Control Document: A document that describes system/subsystem interface design implementation of the requirements. The ICD is a repository for interface definition data (including drawings, sketches, functional lists, procedures and processes, equations, etc.) for use in designing the interface.
e. N Squared Diagrams: Matrix used to identify/summarize the interaction of functional data interfaces and system inputs and outputs.
f. Schematic Block Diagram: Used as the basis for models of the evolving system; this tool:

(1) depicts a complete response to the functional need,
(2) depicts compatibility between elements of the system and interfacing system/subsystems,
(3) provides traceability between system elements and their functional origin and
(4) provides a mechanism for complete and comprehensive change control, (i.e. SBD is used to develop the ICDs) for each design concept.

g. Systems Engineering Management Plan: A comprehensive document that describes how the fully integrated engineering effort will be managed and conducted.
h. Systems Engineering Master Schedule: A compilation of key accomplishments requiring successful completion to pass identified events. Accomplishments include major and critical tasks, activities and demonstrations, with associated criteria.
i. Technical Performance Measures: A select set of critical system technical metrics tracked for verification of the degree of anticipated versus actual achievement.
j. Time Line Sheets: Tabular data summarizing projected/actual times for accomplishing related and/or interactive tasks.

12. PLANNING GUIDANCE: Prior to initiating this activity, predecessor program development activities judged to be of similar scope should be investigated for lessons learned, best practices, resource requirements, and duration. This information should be included in program planning activity including development/update of the Systems Engineering Management Plan and Systems Engineering Master Schedule supporting this activity and follow-on activities in this phase.

a. DURATION: The duration of the concept exploration activity is a function of the scope of the need, the complexity of the system characteristics (functions and requirements) and the number of alternative concepts under consideration. Concept exploration could take from several months (small

number of alternative solutions to a simple operational requirement and need) to one and a half to two years (for a complex set of requirements involving many alternative concepts).

b. CONSTRAINTS: Time and program funds are predictable constraints that will bound the concept exploration studies activities. Inadequate definition of operational requirements, poorly planned/documented programmatic/technical approach will complicate the studies and adversely impact schedule and the quality of the study results. The proper resources in the right numbers must be identified and available to support the studies.

c. RESOURCES: The size and functional makeup of the staff assigned to this activity will vary depending upon the system requirements (technical and programmatic). The use of personnel with prior experience in the analyses conducted during Pre-Milestone 0 activities should facilitate the transition of the project through Milestone 0 and enhance the quality of the product of this studies effort.

d. LESSONS LEARNED: The Air Force Lessons Learned Database may be consulted via Automated Lessons Learned Capture and Retrieval System (ALLCARS). At the time this data sheet was drafted, no lessons learned pertaining to conducting concept exploration studies were available.

e. BEST PRACTICES:

(1) Design:

(a) Measurable design parameters must be established.
(b) System requirements are specified and allocated based on function.
(c) All relevant system requirements are properly flowed down.

(2) Trade Studies:

(a) Trade studies should be iterative.
(b) Technology needs and risks should be identified.
(c) Development, producibility, deployability, operability, supportability and reliability should be considered. The focus of trade studies is on quantifying cost, schedule, and performance.

(3) Planning/Implementation:

(a) The programmatic and technical objectives of concept exploration activities are clearly defined and documented prior to conducting the studies.
(b) Proven techniques (tools) are employed in a disciplined manner when conducting the studies.
(c) Study results, assumptions and constraints must be documented in a formal data base for future use.
(d) Event based milestones, clearly defined success criteria and (baseline) technical performance measures should be employed.

f. TRAPS: The concept exploration studies activities must be approached in a systematic and disciplined manner to ensure that the solutions explored satisfy the functional and operational requirements and ultimately, mission needs. Technology needs for each alternative solution must be clearly identified and program cost, and schedule risk associated with these deficiencies must be realistically characterized.

1. ELEMENT: D37B, TBS 1.2.4.1 (IFC 93-3)

2. ELEMENT TITLE: Conduct Concept Definition for Preferred Alternative(s)

3. ELEMENT OWNER(S): ASC/YX or Product Center XR

4. ELEMENT STAKEHOLDER(S): Operating Command, Air Force Materiel Command (AFMC), Product Centers, Air Logistic Centers (ALCs), Industry, Laboratories, and Other Government Agencies.

5. REQUIREMENT: DODI 5000.2, PARTS 3 & 4, ALL SECTIONS AND PART 6, SECTION A; MIL-STD-499B, SYSTEMS ENGINEERING, PARA 3.8

6. PURPOSE/OBJECTIVES:

a. Purpose: Further define the preferred concepts selected as most promising by the MAJCOM as part of C 25 activities.

b. Objectives: The objectives of this activity are to:

1) further define the system concepts to the subsystem and major component level to support a Milestone I decision,

2)provide the source information to prepare or update/refine the concept and programmatic documentation (e.g. BCD, SRD,SEMP,SEMS,TEMP,ILSP, COEA,etc.) based on the additional level of subsystem information and programmatic planning developed during this activity. (The actual preparation or update of some documentation may be accomplished within other blocks. Refer to the process flow chart and the related data sheets.)

3) provide the technical and programmatic information needed to support the preparation of the cost analysis requirements description (CARD) and program cost estimate to support the POM/BES submittal for the project and the Milestone I decision process.

7. DESCRIPTION:

a. The Process: The contemporary Systems Engineering Process (SEP) outlined in MIL-STD-499B and other Systems Engineering documents (see Key References, Para. 10) provides a framework within which to accomplish concept definition. The SEP provides a disciplined approach by which the acquisition community (project cadre) conducts all technical activities necessary to 1) evaluate evolving operational requirements, 2) identify and allocate enabling system and subsystem functions, 3) develop, evaluate,, and define alternative concepts satisfying those functions and 4) estimate the resulting system performance relative to the Operating Command's needs and evolving operational requirements.

b. The Focus: The concept definition effort provides the technical basis for supporting both the requirements generation and acquisition management system activities and linking those activities to alternative concepts (including support concepts) that will best meet user needs. Critical system functions are identified from the functional architectures and are translated into physical conceptual designs defined to greater detail, (i.e. subsystem and major component level). The concept definition effort includes evaluating evolving operational requirements, defining system and subsystem functions, technical characteristics and technical performance parameters (including supportability parameters) that yield the needed operational utility and identifies their relationship to cost and schedule.

c. Initiation and Execution of Concept Definition: The concept definition effort is essentially identical to the effort contained in Block D 37 except it is evolving the system definition through conceptual design to include the concepts for the subsystems and major components that make up the alternatives. The concepts will be further developed from the definition achieved during the concept

exploration block such that they continue to represent a reasonable balance between the user's stated needs and evolving operational and support requirements and the technology available or needed to implement that alternative. The WBS level 3 subsystems would be defined conceptually to convey the content of that system alternative so that decision makers and users can visualize and understand the general characteristics, strengths (pros) and weaknesses (cons) of each system concept along with the technical requirements that would have to be met to satisfy the users operational requirements. Although only a partial listing, the definition would contain the following types of information (either original or updates to D37 info):

1) Updates to allocated weights
2) Revised system center of gravity and mass distribution estimates
3) Revisions to key contours and shapes critical to aerodynamic, propulsion or signature performance
4) Revised volume estimates and space allocations
5) Power estimates and allocations
6) Initial interface control documents (ICDs)
7) Development or design standards (US, NATO)
8) Performance estimates with properties/characteristics of planned subsystems and major components
9) Takeoff and landing performance estimates
10) Maneuvering and agility predictions
11) RM&D requirements, characteristics and estimates
12) Supportability requirements, characteristics and estimates
13) Industrial base requiremetns and producibility characteristics
14) Identification of performance within the electromagnetic spectrum
15) Defensive and offensive avionics system requirements, capabilities and characteristics
16) Communication and navigation requirements, capabilities and characteristics
17) Structural concepts, requirements and capabilities
18) Strutural durablitity requirements and characteristics
19) Weapons carry and weapons delivery requirements and capabilities
20) etc.

This definition would also include the material, product or process technologies needed to fulfill the requirements along with a risk assessment that clearly identifies the risk areas for that alternative. In addition, the information needed to prepare the SEMP and SEMS for that alternative and the technical information/parametrics that supports estimating the life cycle cost (LCC) of that conceptual "system" must be developed during this block activity. The SEMS is a concept that provides the integrated planning which defines, up front, all the diverse systems engineering and program management tasks and events that must be accomplished to meet the user's needs. It identifies the interrelationships with the program milestones and schedule, and includes the entrance and exit criteria to be used to track and measure successful task completion so the ptogram is event driven rather than schedule driven. Different terms are/have been used to identify the SEMS. (e.g. the Advanced Tactical Fighter program used the term Integrated Master Plan)(IMP)) so you are free to use another term/acronym that you believe better reflects the content or purpose of the SEMS.

The use of nondevelopmental items at the system, subsystem and major component level within the alternative concepts will be described along with the strengths and constraints they impose on the overall conceptual system and the planned program.

The conceptual "systems" will be reviewed during the Preferred Alternatives Review (PAR) (D 45B) to this level of detail, (i.e. WBS level 3 or below) to ensure a consistency in content and level of detail. The concept and project documentation, (e.g. BCD, SRD, etc) will be refined/updated as a part of the activity accomplished in this block to reflect the most current programmatic definition and conceptual system requirements. Other project documentation/functional plans, (e.g. SEMP, SEMS, TEMP ILSP, COEA, etc.) will be prepared or updated as a part of activity associated with other blocks in the process flow.

The traceability of how the conceptual system evolved from the needs, to operational requirements and finally to technical requirements for the system and the subsystems will be managed/tracked as part of the system configuration management responsibilities and is maintained as a part of the project database (Blk D 73).

Substantial amounts of technical information are developed as part of requirements and functional analyses, design synthesis, and trade off analyses performed at the system and subsystem level and is used to support evaluation of the operational effectiveness of each alternative. These analyses will be guided by the users operational constraints, the thresholds and objectives, the maximum cost and minimum performance that have been identified in the COEA (Blk 48). The team working this element must coordinate with the MAJCOM personnel preparing the COEA I Report (Blks C25 & D48).

Operational requirements will be refined and translated into technical requirements at the system and subsystem/major component level. These technical requirements will be identified in the sytem requirements document (SRD) for that system concept. One or more of these conceptual "systems" could be developed further during the demonstration/validation phase based on the results of the Milestone I decision.

The operational capabilities/effectiveness of each conceptual "system" will be defined and compared to the user's stated needs/requirements by using the systems engineering process to analytically verify that the system is mission capable and any limitations/trade offs are acceptable to the user. This assessment must be based on objective analysis that supports a conclusion that the conceptual system being described will satisfy the stated operational and technical requirements (any exceptions need to be clearly identified) along with the program costs for that alternative. System concepts that do not totally meet the user's needs/requirements should not be rejected prematurely if they offer significant benefits (e.g. lower risk, shorter schedule, lower costs) that could outweigh their disadvantages. These should be presented on their merits so that an integrated assessment can be made on which concepts should be pursued further.

The information needed to prepare the SEMS (Blks D60 & D68) for each alternative should also be largely developed along with examples of the entry and exit criteria that would be used at key program events. The technologies must also be sufficiently defined so analysts can reliably predict the conceptual systems performance including performance while in a test phase and an operational support phase. The manufacturing technologies needed and the impact of the technologies embedded in the conceptual "system" on manufacturing processes and productivity must be defined so they can be implemented according to the established schedule.

The definition of the alternative systems must be developed with enough details so they are adequate to support preparation of the Cost Analysis Requirements Description (CARD) in Blks D 52 and D 72 which must, in turn, support estimating the program costs and making a Milestone I decision. This cost estimate must include acquisition cost (including breakout of development and production costs), operation and suport (O&S) costs, and a life cycle cost (LCC) estimate summary. Cost estimates would be primarily parametric with analogy cost estimating methods used as a secondary technique. The technologies that must be employed or will be employed to support the system concept are also to be identified in sufficient detail that the cost of the most probable design implementations can be parametrically costed and scheduled for development, production, and deployment.

Risk management efforts will continue throughout the activity in this block. Earlier efforts have performed a risk assessment to identify the key areas or items that represent risk to the program. The risk management effort will need to include a risk analysis effort to establish the levels of risk associated with the subsystems and major components of the preferred alternative(s). The assessments or updates to the assessments must identify the key risk areas associated with both products and processes that make up the alternative system(s). Those items/elements that have moderate or high risk ratings must be managed so that unfavorable outcomes do not jeopardize the entire program, (e.g. alternatives approache are defined).

The technical requirements for the concepts will be stated in a systems requirements document (SRD). The SRD is a predecessor to a system specification. It is a nonbinding contractual document and has a format similar to a system specification. The SRD contains Sections 1 through 3 from a system specification format, but Section 4 type verifications would typically be included as part of the contractor(s) demonstration/validation proposals.

Execution of the Systems Engineering Process (Ref Mil Hdbk 499-3) to Support Concept Definition: This part of the description will be used to describe the systems engineering process tasks as identified in Mil Std and Mil Hdbk 499. If you are familiar with the content of these documents you may want to skip over the remainder of the description. The systems engineering process of functional analysis, synthesis, and balance and control (e.g. trade off analyses) is used to translate and allocate the operational requirements into technical requirements for each major element of the conceptual "system." The process also supports interface identifications between the major elements, and estimates of the technical budgets for the work required to complete the development , production, deployment and life cycle sustainment of each alternative concept. Systems functions relating operational requirements to design solutions (alternative concepts) are updated/developed from previous study activities and evaluated through a process known as system requirements analysis. The alternative concepts under consideration continue to be described in greater detail, commensurate with the level of definition of the system functions and evaluated for their suitability (effectiveness) through conceptual design studies (design synthesis). The interrelationship between the needs, operational requirements and technical characteristics (system requirements) evaluated in the various concepts are compared against pre-established measures of merit and technical (performance) parameters to assess the effectiveness of the concepts under consideration and provide insight into additional study opportunities, technology requirements and risks (balance and control). The following discussion describes the three major components of the activity which contribute to the refinement of system and subsystem requirements and definition of viable alternative concepts for the preferred alternatives review and use during the requirements summit.

(1) Requirements Analysis: The focus of the requirements analysis conducted during concept definition is on identifying and defining functions (functional requirements) associated with operational requirements and allocating those functions to system and subsystem/major component level technical characteristics. Requirements analysis can be viewed as a two step process aimed at relating operational requirements to viable design concepts (described in a work breakdown structure) via system functional descriptions (represented in a functional architecture). The requirements analysis activity serves as the principle link between the operational command activities (mission need statement preparation and operational requirements definition) and the developer's task of identifying and evaluating viable conceptual design solutions. The process of generating the system requirements is highly interactive with the development of operational requirements; definition of each is influenced by the analyses conducted in the conceptual design and balance & control activities. A variety of analytical methods and concepts are applied in identifying and allocating functions to lower levels and consequently defining system technical characteristics more precisely.

(a) Functional analysis and allocation is a principle component of requirements analysis and involves the identification of top level functions and subfunctions meeting stated operational requirements, typically for a variety of alternative concepts. Functional Flow Block Diagrams (FFBDs) are used to demonstrate the interrelationships of each function and associated subfunctions with one another and the system. Time Line Sheets (TLSs) are used to represent functional sequencing and time critical relationships. These can be derived based on specific times established in operational requirements documents for accomplishing a discrete task, a part of a mission or perhaps an emergency procedure. The process of defining functions at lower levels of detail is accomplished by the Requirements Allocation Sheet (RAS) which has three principle purposes:

- to record performance requirements established for each function
- during synthesis, to show the allocation of functional requirements to individual system elements or combinations of elements and

- to derive the functionally oriented data used in describing the system.

An output of the process that identifies multiple levels of functions (requirements allocation) and their relationships is commonly referred to as the functional architecture. The functional architecture is useful for identifying/refining design concepts and serves as a baseline for assessing functionality and for conducting trades on performance (function, cost, schedule, risk), for assessing the feasibility of achieving the requirements and establishing/confirming the validity of each design.

(2) Conceptual Design (Synthesis): The synthesis activity produces conceptual designs to implement evolving functional architectures and provides information for evaluating the capability of those designs to satisfy evolving system requirements (contained in the SRD) and operational requirements (contained in the ORD). The concept definition will address the total system (system elements) in the context of the life cycle phases and develop the alternative designs to the specified level of detail to support:

(a) cost schedule and performance evaluations,
(b) implementation of a risk management plan (risk identification, evaluation and control),
(c) identification of critical technology requirements (including products, processes and materials).

Two widely used tools to accomplish the synthesis of design concepts are the Concept Description Sheet (CDS) and the Schematic Block Diagram (SBD). The CDS is used to collect performance requirements and constraints (identified in functional analysis) and describe technical characteristics that satisfy those requirements. It conveys a gross level of design demonstrating compliance with the allocated requirements, time line sheets and the functional flow block diagram. The SBD serves as the basis for models of the evolving system and:

(d) depicts a complete response to the functional requirements,
(e) depicts compatibility between elements of the system and interfacing systems/subsystems
(f) provides traceability between system elements and their functional origin and
(g) provides a mechanism for complete and comprehensive change control, (i.e. the SBD can be used during this block activity to develop the Interface Control Documents, ICDs) for each design concept.
(h) functions that are not well defined and/or cannot be completely described by physical models are identified for further evaluation.

(3) Balance & Control describes the set of activities associated with evaluating the derived system requirements, assessing the performance of the alternative design concepts under consideration and formulating recommendations regarding the most promising alternatives. This evaluation and decision activity is supported through trade studies (trade-off analyses) and deals with issues pertaining to risk management, configuration management, technology programs and plans, manufacturing technologies, environmental management and performance-based progress measurement activities. The analyses accomplished at this point in the process also identify alternatives that represent less than 100% solutions and the degree of shortfalls.

(a) Trade studies are conducted on each alternative to establish functional requirements and technical characteristics, evaluate the resulting functional architectures, examine alternative technology strategies and risk abatement approaches, and evaluate gross levels of design to support identification of preferred products and processes.

(b) Risk management activities include identifying and quantifying technical risk in terms of cost, schedule and performance for each alternative concept under study. Technology application risks (products and processes) are identified and quantified at a level commensurate with the level of detail for each concept under consideration. The risks associated with interface characteristics of the functional architecture (both internal and external) are also quantified. Risk control plans are

developed/updated as the designs are iterated and include strategies and concept specific risk abatement activities. This information is used as a part of the activity described in para 7.c.

(c) Configuration management activities include developing preliminary configuration and data management plans and supporting continuing development of the System Requirements Document (SRD) and Baseline Concept Descriptions (BCDs). In support of follow-on concept definition activity (element D37B), system characteristics will evolve sufficiently to warrant creation of Interface Control Working Groups (ICWGs) for coordinating systems engineering activities across system and subsystem interfaces.

(d) The concept definition work requires the team to continue assessing existing technology capabilities for their potential application to the evolving systems and identifying the critical technology shortfalls. Continuous technical interchange between the project cadre and laboratories and industry offering enabling technologies are necessary in order to assess the viability of some of the high risk concepts being explored and provide guidance regarding potential future technology investments. Element D43, Assess Technology Needs transforms system requirements judged to be unachievable with current technologies and characterizes those deficiencies in terms of technology needs for investment by the laboratories. Those technologies that show significant promise and achieve the needed capabilities could then be inserted at an appropriate phase.

(e) Manufacturing Capabilities Requirements (MCR) is a process (tool) used to identify and evaluate manufacturing technologies, product and process characteristics and industrial base capabilities deemed necessary for system development and support. This assessment reviews in detail, each alternative concept under consideration and evaluates the impact from materials, components, tooling and equipment and processing techniques. The MCR assessment serves as basis for developing program manufacturing strategy and and risk reduction approaches; these are updated as the program and concepts mature.

(f) Environmental Management is evolving as a major consideration for weapon system acquisition and requires the development of an environmental management strategy and plans. Standards for the use of hazardous materials and pollutants continue to be tightened and represent a major design consideration affecting system performance throughout its life cycle. Alternative design concepts and the driving system characteristics must be evaluated against existing and projected environmental standards early to address design, development, testing, deployment, and supportability challenges posed by these standards.

(g) Refinement of the Logistics Support Analysis Strategy (LSAS) and preparation of the Logistic Support Analysis Plan serves as a basis for assessing supportability, operability, and maintainability during concept definition. Principle outputs identified in the strategy include support objectives, goals, thresholds, design and support criteria, support concepts (logistics tail) and target improvements over existing systems. The LSA plan will be a dynamic document that identifies the tasks, candidate lists of subsystems/major components needing LSA review, the management structure and authority levels and feedback and control procedures.

(h) For each alternative concept under consideration, technology assessments are conducted to identify critical technologies to the level of definition of each concept. These critical technologies are evaluated against what is currently available or projected to be available. Shortfalls are identified as technology needs for potential addition to government laboratories and industrial base research and development activities. This activity requires a sustained interface between the project team, government laboratories, product centers (across all services), and industry and includes a consideration for Non-developmental Items (Blk D41) and Cooperative Development Programs (Blk D42).

(i) Effectiveness analysis is a principle element of the balance and control activity, providing qualitative and quantitative ratings on the performance of the alternative concepts under consideration. Predetermined performance metrics, referred to as Measures Of Effectiveness (MOEs) serve as benchmarks against which alternative concepts operational capabilities are appraised.

Potential sources of inputs for developing MOEs for use in the evaluation activity include selection criteria employed during Pre-Milestone 0 concept studies and analysis, the Mission Need Statement, Milestone 0 decision documentation (including Acquisition Decision Memorandum, ADM and Program Management Directive, PMD) and the concept exploration studies performed previously. The focus is on the total system (equipment, facilities, personnel, data, and software) and effectiveness is assessed throughout the life cycle (development, manufacturing, verification, deployment, operations, support, training, and disposal phases). Subsequent iterations through requirements analyses and design synthesis are driven by the results of the effectiveness analysis.

(j) Performance based progress management describes the underlying philosophy for the contemporary systems engineering process and involves the development and application of event driven milestones. This is a major consideration during balance and control activities and provides specific exit criteria for concept exploration studies. Updates to the Systems Engineering Management Plan (SEMP) and Systems Engineering Master Schedule (SEMS) are accomplished as a part of the balance and control activities. Specific criteria developed and documented in the SEMS is used as a basis for determining when each design concept has been defined to the necessary level of detail and characterizes the performance of each concept as measured by predetermined Technical Parameters (TPs) evaluated on a continuing basis through Technical Performance Measurement (TPM). Technical parameters are a select set of system technical metrics chosen by management to track development progress; TPs are identified through and support risk analyses, contract specifications, and contracting strategy. The process of continuously assessing the degree of anticipated and actual achievement of TPs is referred to as TPM. Technical performance measurement provides insight into design deficiencies and provides an indication of the potential impact on system level requirements. The TPM process provides: 1) visibility into actual versus planned performance, 2) early detection or prediction of problems which require management attention, and 3) assessment of the program impact resulting from proposed change alternatives.

(k) The trade study activities culminate in the publication of Trade Study Reports (TSRs) which identify and characterize promising concepts, document the results of significant trades, identify study assumptions and constraints, provide an assessment of concept risks and methods of abatement and document rationale used in the decision process.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The alternatives to be defined have been selected by the operating command (Blk C 25) and the Concept Exploration (Blk D 37) activity has been completed.

b. Exit:

(1) The concepts have been defined so that the decision makers in the operating and implementing MAJCOMs can review these more detailed definition(s) and can decide which of the alternative conepts would best meet the needs and could be pursued in the demonstration/validation phase.

(2) Concept definition is concluded once it has been established that the project milestones identified in the SEMS have been met, that all technical plans have been updated (including the SEMS) and they support the SEMP.

(3) The concepts must be adequately defined to support the cost estimates that have to be prepared and submitted as part of the program documentation and to support the Milestone I decision process.

(4) The risks associated with the concept(s) and risk management methods to be used must be described and implemented.

(5) The potential environmental impact associated with developing, producing, operating, and maintaining the products using the planned processes must be clearly identified.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) MAJCOM Selected Preferred Alternatives (C25)
(2) System Concept Defined to WBS Lvl 2
(3) COEA I Plan (D23)
(4) Mission Need Statement (D49)
(5) Draft Operational Requirements Document (C19)
(6) Systems Requirements Document (D37)
(7) Identify Non Developmental Item Candidates for System Concepts (D41)
(8) Identify Items for Joint Use/Coopreative Development (D 42)
(9) Draft and Final Request for Proposal (Review Comments) (D64)
(10) Functional Plans (e.g. SEMP, SEMS,ILSP,etc.) (60)
(11) Assessments of Advanced Technology for Transition (D30)
(12) Baseline Concept Descriptions to a WBS Level 2 (D37)
(13) Source data for CARD preparation (D49, D48, and C23)
(14) Comparative Analysis of Preferred Alternatives (D48& D46)

b. Outputs:

(1) Preferred Concepts Defined (To WBS Level 3) (D45B)
(2) Updated Systems Requirements Document (SRD) (D45B)
(3) Update to the Database (D73)
(4) Technical Information for the CARD (D52 & D72)
(5) Updated Baseline Concept Descriptions (D45B)
(6) Programmatic and Tech Info (D50, D51, D53, D54 & D71)
(7) Define Adv Technology Needed for Transition & Integration (D30)
(8) Identify Non Developmental Items in Systems & Subsystems (D41)
(9) Identify Cooperative Development/Joint Use Opportunities (D42)
(10) Technical and Programmatic Information for RFP Preparation (D64)
(11) Identify Manufacturing Capability Requirements (D45B, D60 & D68))
(12) Source data for Draft and Final MS 1 Documents and Functional Plans (D60 & D68)
(13) Concept Risk Assessment (D45B,D60, & D68)
(14) Trade Studies Report (D45B & C19)
(15) Effectiveness Analysis Info/Update the COEA I Analysis & Report (C23)
(16) Supportability Analyses (D45B)
(17) Survivability/Vulnerability Analyses (D45B)

10. KEY REFERENCES:

a. Defense Systems Management College- Systems Engineering Management Guide, Jan 90.

b. DODI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91.

c. DODI 5000.2-M, Defense Acquisition Management Documentation and Reports, Feb 91.

d. MIL-STD-499B, Systems Engineering.

e. MIL-HDBK-499-3, Systems Engineering/Configuration Management Life Cycle Application (Draft), Dec 92.

f. DODD 5000.1, Defense Acquisition, 23 Feb 91.

g. DODD 5000.4, OSD Cost Analysis Improvement Group (CAIG), 24 Nov 92.

11. IMPLEMENTATION TOOLS: Several tools are identified in Para. 7 for accomplishing the tasks in this element. A summary of these tools are listed here along with a brief description of their use:

a. Concept Design Sheet: Used to collect performance requirements and constraints (identified in functional analysis) and describe technical approaches for satisfying those requirements.

b. Functional Architecture: Process of arranging functions/subfunctions in a hierarchy, showing internal and external functional and physical interfaces.

c. Functional Flow Block Diagram: Layered matrices showing the sequential interface relationships for the functions in a system.

d. Interface Control Document: A document that describes system/subsystem interface design implementation of the requirements. The ICD is a repository for interface definition data (including drawings, sketches, functional lists, procedures and processes, equations, etc.) for use in designing the interface.

e. N Squared Diagrams: Matrix used to identify/summarize the interaction of functional data interfaces and system inputs and outputs.

f. Schematic Block Diagram: Used as the basis for models of the evolving system; this tool:

(1) depicts a complete response to the functional need,
(2) depicts compatibility between elements of the system and interfacing system/subsystems,
(3) provides traceability between system elements and their functional origin and
(4) provides a mechanism for complete and comprehensive change control, (i.e. SBD is used to develop the ICDs) for each design concept.

g. Systems Engineering Management Plan: A comprehensive document that describes how the fully integrated engineering effort will be managed and conducted.

h. Systems Engineering Master Schedule: A compilation of key accomplishments requiring successful completion to pass identified events. Accomplishments include major and critical tasks, activities and demonstrations, with associated criteria.

i. Technical Performance Measures: A select set of critical system technical metrics tracked for verification of the degree of anticipated versus actual achievement.

j. Time Line Sheets: Tabular data summarizing projected/actual times for accomplishing related and/or interactive tasks.

12. PLANNING GUIDANCE: Prior to initiating this activity, predecessor program development activities judged to be of similar scope should be investigated for lessons learned, best practices, resource requirements and duration. This information should be included in program planning activity including development/update of the Systems Engineering Management Plan and Systems Engineering Master Schedule supporting this activity and follow-on activities in this phase.

a. DURATION: The duration of the concept definition activity is a function of the scope of the need, the complexity of the system and subsystem characteristics (functions and requirements) and the number of preferred concepts that require further definition. Concept definition could take from several months (small number of preferred alternatives to a simple operational requirement and need) to one and a half to two years (for a complex set of requirements involving several preferred alternatives).

b. CONSTRAINTS: Time and program funds are predictable constraints that will bound the concept definition activities. Inadequate definition of operational requirements, poorly planned/documented programmatic/technical approach will complicate the work effort and adversely impact schedule and the quality of the results. The proper resources in the right numbers must be identified and available to support the effort.

c. RESOURCES: The size and functional makeup of the staff assigned to this activity will vary depending upon the system requirements (technical and programmatic). The use of personnel with prior experience in the analyses conducted during Pre-Milestone 0 activities should facilitate the transition of the project through Milestone 0 and enhance the quality of the product of the concept definition effort.

d. LESSONS LEARNED: The Air Force Lessons Learned Database may be consulted via Automated Lessons Learned Capture and Retrieval System (ALLCARS). At the time this data sheet was drafted, no lessons learned pertaining to conducting concept definition was available.

e. BEST PRACTICES: The concept definition activity must be approached in a systematic and disciplined manner to ensure that the soultions are adequately defined to establish if they would satisfy the funtional and operational requirements and ultimately, mission needs.

(1) Design:

(a) Measurable design parameters must be established.
(b) System requirements are specified and allocated based on function.
(c) All relevant system requirements are properly flowed down.

(2) Trade Studies:

(a) Trade studies should be iterative.
(b) Technology needs for each alternative solution must be clearly identified and program cost, and schedule risk associated with these deficiencies must be realistically characterized.
(c) Development, producibility, deployability, operability, supportability and reliability should be consider. The focus of trade studies is on quantifying cost, schedule and performance.

(3) Planning/Implementation:

(a) The programmatic and technical objectives of concept definition are clearly defined and documented prior to conducting the studies.
(b) Proven techniques (tools) are employed in a disciplined manner when conducting concept definition.
(c) Evaluation results, assumptions and constraints must be documented in a formal data base for future use.
(d) Event based milestones, clearly defined success criteria and (baseline) technical performance measures should be employed.

f. TRAPS:

(1) Poor definition of acceptance or success criteria for event based scheduling.
(2) Lack of a common set of program priorities across functionals, PCs, ALCs & the operating command.
(3) Alternatives not sufficiently robust to effectively perform other missions or tasks.
(4) Too little attention to "off design" performance and operating characteristics of the system.

1. ELEMENT: D41, TBS 1.2.4.2 (IFC 93-3)

2. ELEMENT TITLE: Define Use of Non-Developmental Items (NDI)

3. ELEMENT OWNER(S): The Office of the Assistant Secretary of Defense for Production and Logistics (OASD (P&L) SDM) is charged with overseeing DoD activity as it relates to NDI procurement.

4. ELEMENT STAKEHOLDER(S): Developing Project Office, Operating Command, Air Force Competition Advocate, and The Deputy Under Secretary of Defense for Acquisition Reform (OSD/DUSD(AR)).

5. REQUIREMENT:

a. DODI Directive 5000.1,, Defense Acquisition, Part 1, Part 1, page 4, Para 1.c, 23 Feb 91, states maximum practicable use shall be made of commercial and other non-developmental items. In describing these items, maximum practicable use shall be made of non-government standards and commercial item descriptions.

b. DODI 5000.2, Defense Acquisition Management Policies and Procedures, Part 6, Section L; Part 6, Section H, para 3.a.(3); Part 3, page 3-11; and Part 10, Section C, para 2.d, Non-Developmental Items, 23 Feb 91, states policies and procedures which establish the basis for cost-effective use of commercial products and other non-developmental items in defense systems and equipment.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose of this element is to define purchasing/using existing products or systems rather than pursuing development of new items.
b. Objectives: Define existing or emerging products/technology that has potential to save life cycle cost given the requirements and updated information at this program stage. The following objectives can be used to analyze potential products/technology:

(1) Reduced developmental cost
(2) More rapid fielding
(3) Proven capability/reliability
(4) Increased competition
(5) Established logistics support
(6) Tech data developed
(7) The item is likely state-of-the-art
(8) Competitive Forces have shaped its functionality
(9) Existing established market
(10) Reduced risk

7. DESCRIPTION:

a. This is an update to the work which went on in D13 and D27 on non-developmental items. The brief NDI outline accomplished in (D13) and its further exploration (D27) are updated to reflect changes in the program including requirements and threat assessment.

b. At this stage, we are trying to narrow the amount of concepts and alternatives from (D37B and D29). The Air Force will investigate off-the-shelf items and will evaluate them for satisfying Air Force needs (D29).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: A material need has been identified and options are formulated. Also preliminary performance ranges, thresholds, and trade-offs associated with what is known about NDI at this point of the project.

b. Exit: Update NDI information using COEA and threat assessment studies. Also, update the preliminary investigation of alternative logistics support.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) The project team requires a description of the mission need from the MNS summary, COEA, and Threat assessment.

(2) Results from market surveillance of laboratories and the industrial base through trade shows and trade magazines is the primary method for gaining knowledge of existing technology and products (D29). An updated cost effective analysis should be performed on the item to find if it is a viable solution to the item needed.

b. Outputs: Provide the Operating Command with insight to potential concept alternatives that address his draft mission need (D37). It is important that selected NDI alternatives flow back into this element so they can be integrated in a realistic need.

10. KEY REFERENCES:

a. Title 10 U.S.C. 2325, Preference for Non-developmental Items, 18 Oct 87. This section of Title 10 mostly describes Congressional mandate to the Air Force to look at and use NDI in a weapon system whenever possible.

b. Proposed Strategic Plan to Pu[illegible]e Acquisition Reform, 8 Jun 93. Contains draft information on using NDI as a preferred alternative t[illegible]eveloping new systems and establishing a group of advisors from OSD/DUSD(AR) to help in NDI pr[illegible]curement.

11. IMPLEMENTATION TOOLS:

a. Trade magazines and trade shows for market surveillance.

b. Buying NDI/SD-2, Oct 90. Contact Office of the Assistant Secretary of Defense (Production and Logistics), Washington, D.C. 20301-8000. This tool mainly describes the buying process for NDI.

c. Market Analysis for Non-Developmental Items, SD-5. Contact Office of the Assistant Secretary of Defense (Production and Logistics), Washington, D.C. 20301-8000. Describes NDI as an e[illegible]cellent alternative to business as usual.

d. Joint Command Commercial Off-the-Shelf (COTS) Supportability Working Group (CSWG) Final Report, Jun 91. Contact ASC/SDC. Describes the life cycle concerns of NDI. This is an excellent guide and is highly recommended to anyone who is considering the use of NDI.

12. PLANNING GUIDANCE:

a. DURATION: You should start with the Mission Need Statement (MNS) and the Government Systems Requirement Analysis to get a handle on the architecture/configuration alternatives. This is an

ongoing process throughout Pre-Milestone 0 to Milestone I and will vary in duration depending on complexity of item and length of milestone.

b. CONSTRAINTS: As always, timing is an major constraint. If a NDI is selected early, it may become obsolete and out of production by the time the weapon system is fielded. You have limited data rights with NDI, no configuration control, and no existing AF support structure.

c. RESOURCES: All functional areas need to be involved in NDI. Much of their involvement will be in the requirements area. There will be a low level of man-hours with NDI at this stage of the project. Most of the man-hours will be put into the very important requirements area so that realistic requirements levels will be defined and a better selection of NDI will be made.

d. LESSONS LEARNED: There were 7 lessons learned in the Automated Lessons Learned Capture and Retrieval System (ALLCARS) database. The numbers are 1449, 20009, 20012, 20016, 20045, 20047, 20084. These items all dealt with logistical support problems and problems with slightly modified NDI items. Therefore, pay special attention to these areas when considering NDI.

e. BEST PRACTICES: If NDI is not considered at the early stages of the acquisition cycle, then you probably will not be able to acquire it as an NDI item later.

f. TRAPS Not taking the follow-on support and possible added life cycle costs into account when using NDI. Too much modification usually negates any life cycle cost savings.

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1. ELEMENT: D42, TBS 1.2.4.3 (IFC 93-3)

2. ELEMENT TITLE: Define Cooperative Opportunities (DCO)

3. ELEMENT OWNER(S): Deputy Under Secretary of Defense (International Programs)(DUSD(IP)), Assistant Under Secretary of Defense for Programs & Acquisition (USDA(P&A)), SAF/AQXI, AFMC/IA, WL/XPI.

4. ELEMENT STAKEHOLDER(S): *Project Office, Operating Command, Air Force Competition Advocate.*

5. REQUIREMENT: DODI 5000.2 , Defense Acquisition Management Documentation and Reports, 23 Feb 91, Part 3, pg. 3-9, and Part 5, Section F, para 3E. This identifies the requirement to consider potential cooperative research and development.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose is to update the work accomplished on cooperative opportunities from D14 and D28 with updated information. The documentation is compounded in Cooperative Opportunities Document (COD), and required at Milestone I and beyond (see DODI 5000.2 for details).

b. Objective: To define applicable Cooperative Development items for the program. By defining the preferred alternatives (D37B), these preferred alternatives can be evaluated for there potential for cooperative development opportunities that could be pursued with other services or allied nations.

7. DESCRIPTION:

a. Key inputs are to define the preferred alternatives (D37B), which is accomplished by monitoring industry and participating in government programs through IR&D, RFIs, RFPs, or other means (D29) and updating the requirements and specifications. In this area, DoD's influence on industry is primarily through Small Business Innovation Research (SBIR) and Independent Research and Development (IR&D) activities. DoD activities invite small business firms with strong research and development capabilities in science and engineering to submit proposals under the SBIR program. The objectives of this program include stimulating technological innovation in the private sector, strengthening the role of small business in meeting DoD research and development needs, fostering and encouraging participation by minority and disadvantaged persons in technological innovation, and increasing the commercial application of DoD-supported research or research and development results. Determining applicability of Non Developmental Items (NDI) (D41) is accomplished in a parallel time frame.

b. The DODI 5000.2 requirement for assessing DCO mandates the consideration of buying allied systems or cooperating between our various allies on development, before initiation of a new acquisition program. A DCO assessment is required for Acquisition Category (ACAT) I programs and cooperative opportunities should be investigated as part of the acquisition strategy for ACAT II, III, and IV programs. Specifically, DODI 5000.2 specifies an order of preference for new programs as follows:

(1) Use or modification of an existing U.S. military system.
(2) Use or modification of an existing commercially developed or Allied system that fosters a non developmental acquisition strategy.
(3) A cooperative research and development program with one or more Allied nations.
(4) A new joint Service development program.
(5) A new Service-unique development program.

c. Cooperative Development must be addressed during this stage of the program for documentation for writing the COD at Milestone I.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: A materiel need has been identified and conception designs are being formulated.

b. Exit: Technical and programmatic information about possible CD opportunities with high payoff potential has been provided to the project team for integration into the conceptual definition activities.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

1) A deficiency or technological opportunity has been validated (D37B).

2) Key inputs on the flow chart are to refine requirements, develop more concept details, and update COEA I analysis (D37B).

3) To monitor industry and participates in government programs through IR&D, RFIs, RFPs, or other means (D29). In this area, DoD's influence on industry is primarily through SBIR and IR&D activities. DoD activities invite small business firms with strong research and development capabilities in science and engineering to submit proposals under the SBIR program. The objectives of this program include stimulating technological innovation in the private sector, strengthening the role of small business in meeting DoD research and development needs, fostering and encouraging participation by minority and disadvantaged persons in technological innovation, and increasing the commercial application of DoD-supported research or research and development results. Determine Applicability of Non Developmental Items (NDI) (D41) is accomplished in a parallel time frame.

b. Outputs: A formal list of items for joint use/cooperative development will be prepared for the systems / subsystems of the preferred alternatives. Key flowchart output is D37B. Provide the Operating Command with insight to potential concept alternatives, such as DCO, that address his draft mission need.

10. KEY REFERENCES:

a. HQ AFMC/XT Letter, 9 Mar 92, Development Planning Relationship to International Opportunities. This shows how DCO is integrated into the program life cycle.

11. IMPLEMENTATION TOOLS: None identified.

12. PLANNING GUIDANCE:

a. DURATION: The amount of time needed to accomplish this activity is dependent upon the complexity of the item. Forty man-hours of the project management team should be more than enough time.

b. CONSTRAINTS:

(1) Time and money in investigating various alternatives.

(2) Lack of a central location to obtain needed information on existing and planned military and allied nation projects.

c. RESOURCES: Not much time is needed at this point of the program. Forty man-hours for project office personnel should be more than enough for a program of any complexity.

d. LESSONS LEARNED: There are no lessons learned in the Automated Lessons Learned Capture and Retrieval System (ALLCARS) database on this item.

e. BEST PRACTICES:

(1) Start as early as possible compiling information on U.S. and allied programs which should be evaluated for joint program applicability. Consideration to buy or cooperate at or near the Milestone I decision is too late to effectively pursue overseas opportunities. Consideration of overseas opportunities must begin during development planning or, for technology push, be an outgrowth of ongoing S&T cooperation. Therefore, it is important to begin early to investigate the various alternatives dealing with cooperative development programs.

(2) The Defense Acquisition Board (DAB) will be much more inclined to hold up programs that have not identified ways to reduce costs to the U.S. taxpayer through cooperation. (Donald Yockey, Principal Deputy Under Secretary of Defense for Acquisition: Appearance before the Senate Armed Services Committee, 12 Jun 90). This analysis should be done to assist in making a decision, not just to fill out the paper work!

f. TRAPS: Don't forget to establish early a comprehensive protection and technology control program to identify and protect classified and other sensitive information.

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1. **ELEMENT: D43, TBS 1.2.1.7** (IFC 93-3)

2. **ELEMENT TITLE:** Assess Technology Needs

3. **ELEMENT OWNER(S):** ASC/YX

4. **ELEMENT STAKEHOLDER(S):**

a. Operating Commands
b. Implementing Commands
c. Product Centers
d. Product Center Development Planning (XR) organizations
e. Project/Program Offices
f. Wright Laboratory (WL)
g. Armstrong Laboratory
h. Other DoD laboratories
i. Logistics Centers
j. Other Services
k. Industry

5. **REQUIREMENT:** DODI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91

a. Part 5, Acquisition Strategy, Section D, Technology Transition and Prototyping. This requirement directs that the acquisition strategy for defense acquisition programs identify plans, activities, and criteria for assessing and transitioning critical technologies from technology development and demonstration programs. Section D establishes the policies and procedures to be followed to accomplish this requirement.

b. Part 6, Engineering and Manufacturing, Section A, Systems Engineering. This requirement establishes the systems engineering policies and procedures to be followed for technology transition efforts.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: Translate critical technology needs and deficiencies identified during Concept Exploration Studies (D37) to laboratories (D30) and industry (D29).

b. Objectives:

(1) Provide technology investment recommendations to laboratories and industry based on operational requirements which cannot be met because the technology to perform the required functions 1) does not exist, 2) is not in development, or 3) is not planned to be developed.

(2) Provide technical recommendations, guidance, and/or direction to laboratories and industry in order to influence the relevance, scope, timeliness, and technical approach of ongoing or planned technology development programs which have application to the functional and performance requirements of alternative design concepts .

(3) Request assistance from laboratories and/or industry to help define or describe functions needed to meet operational requirements and to identify technologies which could accomplish the required functions.

7. DESCRIPTION:

a. What is Technology Needs Assessment?

(1) Technology Needs Assessment is a Phase 0 activity performed in support of the Requirements Analysis, Conceptual Design, and Balance and Control components of Concept Exploration Studies (D37). Although the Technology Needs Assessment Element (D43) is a specific activity identified to support the Concept Exploration Studies Element (D37), technology assessment in general should have been initiated before Milestone 0 (see D5, Technology Area Assessment) and should continue throughout the life of the project/program until the need for development and upgrade activities no longer exists.

(a) During Concept Exploration Studies (D37), various alternative design concepts (and associated functional and performance requirements) are produced to satisfy the evolving system requirements. Using inputs from laboratories (D30) and industry (D29), and considering Non Developmental Items (D27) and possible Cooperative Opportunities (D28), the functional and performance requirements are compared with available or projected technologies. Based on the primary functional and performance requirements essential to meeting mission requirements, the Concept Exploration Study team determines the technologies and technology development programs which are critical to the success of each alternative design concept and establishes a Critical Technologies List.

(b) A determination is also made of functional and performance requirements which can and cannot be satisfied by existing or planned technologies. Technology needs are also described on the Critical Technologies List.

NOTE: For the purpose of discussion in this document, Critical Technology can be defined as follows: A scientific method which is essential to performing a primary mission function at a specific level of performance.

(2) The Technology Needs Assessment activity uses the Critical Technologies List to identify and translate critical technology needs to the laboratories and industry. Technology needs can be classified in different ways:

(a) Technologies which do not exist, are not in development, or are not planned to be developed.

(b) Developing technologies which may be relevant but whose current technical approach and/or schedule may not meet project/program requirements.

(c) Existing technologies requiring modification or further development to meet project/program requirements.

(d) System requirements for which functional or performance requirements cannot be fully defined nor applicable technologies identified.

b. Who does Technology Needs Assessment?

(1) The Technology Needs Assessment should be performed by an integrated process team (IPT) formed to facilitate cross flow of technology information between the project team and the laboratories and industry. The Technology Needs IPT may be a subgroup of a Concept Exploration Studies IPT. The Technology Needs IPT should be a logical outgrowth of the mission area Technical Planning IPT (TPIPT) which performed the Pre-Milestone 1 Technology Area Assessment (D5).

(2) In general, the Technology Needs IPT membership should include representation from all stakeholders having responsibility for technological aspects of the project. IPT

membership should include project office engineers representing the primary engineering functions (flight systems, avionics, crew systems, armament systems, manufacturing, support systems, training systems). Membership should also include representation from the operating command, development planning (XR), and the laboratories. If determined to be appropriate, industry contractor teams may also be represented. IPT membership should include individuals directly involved with concept exploration study activities (D37). In the interest of continuity, timeliness, and quality of Technology Needs Assessment activities, it is highly recommended that membership also include TPIPT members who participated in the Pre-Milestone 1 Technology Area Assessment (D5).

(3) Although initially formed to support the Phase 0 Concept Exploration Studies, the Technology Needs IPT function should remain active in order to support Concept Definition for Preferred Alternatives (D37B), Request for Proposal Preparation (D64), and Source Selection (D70). The Technology Needs IPT function should also continue throughout the life of the project/program until the need for development and upgrade activities no longer exists.

c. How is Technology Needs Assessment Performed?

(1) Technology Needs IPT Organization. Based on the scope and length of concept exploration Studies, consideration should be given to whether or not the Technology Needs IPT should be formally chartered by the project manager. The extent of formal organization should be based on the projected quantity and frequency of information transfer and the need to organize information collection and information flow. The project manager may want to consider establish the Technology Needs IPT as the single point of contact for technology information collection as a way to simplify communication and to eliminate duplication of effort.

(2) TPIPT Transition. The Technology Needs IPT should use information and lessons learned from the appropriate mission area TPIPT as a starting point for becoming the technology focal point for Concept Exploration Studies.

(3) Technology Awareness. Technology Needs IPT members need to be aware of the scope, status, and sources of technologies applicable to the functional and performance requirements of the design concepts produced during Concept Exploration Studies. Technology awareness can be developed through a variety of activities including (see D5, Technology Area Assessment, section 7.c, for additional details):

(a) Personal awareness due to personal contacts and/or regular reading of technical periodicals, professional journals, etc.
(b) Review of laboratory programs.
(c) Technology development sponsored by other USAF programs.
(d) Technology development sponsored by other U.S. military services.
(e) Literature Searches.
(f) Review of industry independent research and development (IR&D).
(g) Intelligence information from the Foreign Aerospace Science and Technology Center (FASTC) or other sources.
(h) Technical conferences, conventions, and symposiums.

(4) Technology Information Cross flow. As design concepts evolve throughout Concept Exploration Studies (D37), questions will continue to be raised and information required about technologies needed to accomplish functional and performance requirements. The Technology Needs IPT, with its breadth of expertise, should serve as the primary liaison and facilitator of information flow between the Concept Exploration Studies team and the various sources of technology information (D27, D28, D29, D30).

(5) Technology Needs

(a) Technology Needs Recommendations. If it is determined that technology needed to accomplish functional or performance requirements does not exist, is not in development, or is not planned to be developed, the Technology Needs IPT should prepare and issue technology recommendations reports (similar to the TIRRs prepared by TPIPTs) to the appropriate laboratories. The technology recommendation reports should be formal documents transmitted from the project/program office. Technology recommendation reports should include definitions of the functions required to be performed, required performance, cost guidelines, and projected need dates. Having a formally stated technology need, the laboratories can use the technology recommendations to plan for new technology program thrusts. Laboratory members of the Technology Needs IPT, with both laboratory experience and knowledge of project conceptual design requirements, can provide valuable assistance in translating technology needs to the laboratories.

(b) Request for Assistance. At some point during synthesis of individual concept designs, the Concept Exploration Study team may have difficulty defining certain functions or levels of performance required to meet mission requirements. The Technology Assessment IPT should request assistance from the laboratories in the form a formal technology need.

(6) Assessment of Laboratory Programs. Following review of ongoing laboratory technology development programs, it may be determined that relevant technologies are being developed but the current technical approaches and/or schedules may not meet project/program needs. The Technology Needs IPT should prepare and transmit formal technology program assessment reports to the appropriate labs. Program assessments should describe the applicability of laboratory programs to project requirements and recommend changes in laboratory programs needed to meet project technical and/or schedule requirements. Having formally stated technical guidance from a project/program office, the laboratories can then justify modifying the appropriate programs.

(7) Assessment of Industry IR&D. The project Technology Needs IPT can participate in the annual review of industry Independent Research and Development (IR&D) programs. Through the IR&D review process, recommendations can be made to industry on how to adjust their planned or ongoing technology development programs to meet concept design functional and performance requirements. Laboratory and industry representatives on the Technology Needs IPT can provide valuable assistance in translating technology needs to industry.

(8) Contractual Direction. If funding is available, contractual actions may be initiated for contractor technology development studies and/or programs (see D35). Laboratory and industry representatives on the Technology Needs IPT can provide valuable assistance to the Concept Exploration Studies team in developing contractual requirements.

(9) Requests for Information. If specific information is not available or needs to be developed, the Technology Needs IPT can issue formal requests for information to the laboratories and/or industry.

(10) Technology Presentations. The Technology Needs IPT should serve as the single point of contact for coordinating and scheduling laboratory and industry technology program presentations requested by the Concept Exploration Studies team.

(11) Follow-Up. Since Concept Exploration Studies is an iterative process involving evolution of system requirements, design concepts, and functional and performance requirements, the associated technology needs will also change. The Technology Needs IPT must maintain communication with the organizations it has provided with technology needs, program assessments, and recommendations in order to keep them aware of changing requirements. The IPT should also provide feedback to the Concept Exploration Studies team on the status of the actions being taken by the laboratories and industry in response to formally stated project technology needs.

8. ENTRANCE/EXIT CRITERIA:

a. Enter: The Technology Needs Assessment Element (D43) could begin before Milestone 0 as a support function of the Preliminary System Concept Option Development Element (D9), where mission needs begin to take form as system concepts. At this point the focus of technology assessment needs to narrow in on technologies required to form specific functions derived from early system concepts (D9), as opposed to the more general Technology Area Assessment (D5) performed by mission area TPIPTs. It is better that Technology Needs Assessment begin earlier than later, but no later than the start of Concept Exploration Studies (D37).

b. Exit: The Technology Needs Assessment Element should continue at least as long as the Concept Exploration Studies Element (D37) and should continue until all necessary follow-up actions have been completed. Consideration should be given to maintaining the Technology Needs function/IPT throughout the remainder of Phase 0 in order to support Concept Definition for Preferred Alternatives (D37B), Request for Proposal Preparation (D64), and Source Selection (D70). Regardless of whether Elements D5 or D43 continue as specifically identified element names or numbers, a permanent technology assessment function should be established in order to maintain awareness of applicable technology developments throughout the life of the project/program until the need for development and upgrade activities no longer exists.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Mission Area Development Plans from mission area TPIPTs (D5).
(2) Technology Investment Recommendation Reports (TIRRs) from mission area TPIPTs (D5).
(3) Concept Design Functional and Performance Requirements from Concept Exploration Studies (D37).
(4) Critical Technologies List from Concept Exploration Studies (37).
(5) Review of Non Developmental Items (NDI) (D27).
(6) Review of Cooperative Opportunity Exploration (D28).
(7) Technology Program Reviews from WL/XP (D30).
(8) Technology Plans for Wright Laboratory from WL/XPR (D30).
(9) Technology Area Plans from WL/XPT (D30) and DTIC (WL/DOC).
(10) IR&D Annual Program Reviews (WL/XPR) (D29/D30).
(11) IR&D Annual Plans and Reports (WL/XPR) (D29/D30).
(12) Literature Searches (WL/DOC). The Wright Laboratory Technical Library would be the primary facilitator for accomplishing literature searches. WL-assisted literature searches will allow you to search the DTIC and other information databases through which you should be able to find information on technology development programs of DoD laboratories other than WL.

b. Outputs:

(1) Technology Investment Recommendation Reports.
(2) Requests for Technical Assistance.
(3) Laboratory Program Assessment Reports.
(4) Industry IR&D Evaluations.
(5) Technical Requirements for RFPs.
(6) Requests for Information.

10. KEY REFERENCES: See paragraph 5, Requirement, above.

11. IMPLEMENTATION TOOLS:

a. See paragraph 9.a, Inputs, above.

b. See Element D5, Technology Area Assessment, paragraph 7.c, How Are Technology Programs Identified?

c. Databases such as the Defense Technical Information Center (DTIC) and "UnCover" (contact Wright Laboratory Technical Library, WL/DOC).

d. Professional journals, technical periodicals, conventions/conferences and proceedings.

12. PLANNING GUIDANCE:

a. DURATION: The duration of the Technology Needs Assessment Element is dependent upon the scope of project/program elements to be supported (see paragraph 8, Entrance/Exit Criteria, above). If the performed only in support of the Concept Exploration Studies Element (D37), the duration can range from several months to 2 years. If the Technology Needs Assessment activity is established to support earlier or later elements, additional time will be added to the duration. Although Technology Needs Assessment activities may span a period of months or years, it will most likely involve a series of short term projects spread intermittently over the entire period.

b. CONSTRAINTS:

(1) Maintaining awareness of technology development efforts across government and industry, nationally and internationally, can be very time consuming.

(2) In addition to being time consuming, obtaining complete information on technology development efforts from all DoD laboratories, other services, industry, and foreign sources can be difficult. Information on "black world" program technology development is not available within the general laboratory community.

(3) Time and program funds are predictable constraints that will impact technology assessment activities. Inadequate definition of operational functional, and performance requirements will complicate the ability to translate technology needs to the laboratories and industry and may, in turn, adversely impact schedule and the quality of the of Concept Exploration Study results.

c. RESOURCES:

(1) People. As described in paragraph 7.b.(1), above, the Technology Needs Assessment activity requires representation from all stakeholders having responsibility for technological aspects of the project. People resources should include project office engineers representing the primary engineering functions (flight systems, avionics, crew systems, armament systems, manufacturing, support systems, training systems), as well as representatives from the operating command, development planning (XR), the laboratories, others as required and industry (if determined to be appropriate). For a weapon system acquisition project of the scope of the F-22 or Multi-Role Fighter, approximately 10-20 people could be assigned to participate in technology assessment with additional support as needed. It is important to note that although Technology Needs Assessment activities may span a period of months or years, that work will most likely come in a series of short term projects and probably will not require long term full time commitment of people. It is feasible that the people involved in Technology Needs Assessment would also be assigned to the Concept Exploration Studies team or other activities.

(2) Financial. Funding should be made available for travel for Technology Needs Assessment people to attend program reviews, conferences, conventions, etc., visit contractors, and to purchase conference proceedings, subscriptions to technical journals and periodicals, etc.

d. LESSONS LEARNED:

(1) June 1993 MRFP Technology Assessment

(a) In June 1993 the USAF Multi Role Forces Project (MRFP) Office requested that the ASC Program Development SPO Engineering Division (ASC/YXE) perform a technology assessment of laboratory programs applicable to a F-16 follow-on weapon system. The review primarily concentrated on programs presented at the 1993 Wright Laboratory Spring Review.

(b) Approximately 10-15 engineers involved in the June 1993 ASC/YXE MRFP technology assessment attended the WL Spring Review. The Spring Review was held during the first week of May 1993 and lasted approximately five working days. Approximately 20-30 engineers from YXE, other SPOs, and ASC/EN functional organizations participated in the evaluation of the lab programs for the MRFP.

(c) Out of the 200 or so technology development programs presented at the WL Spring Review, approximately 70 were identified as being applicable to the MRFP. Each of the 70 programs were evaluated and scored by individual engineers. Composite scores were compiled for each program and presented to a core team of senior engineers who established the final scores. This core team consisted of approximately eight people representing MRFP program management (ASC/YXM), Program Development Engineering (ASC/YXE), development planning (ASC/XR), and Wright Laboratory. This effort lasted a total of approximately 3 weeks. Individual time spent ranged from 1-2 hours to 2-3 days with the over a period of approximately 3 weeks.

e. BEST PRACTICES: None identified as of this date.

f. TRAPS:

(1) Failure to organize the Technology Needs Assessment process into a coordinated effort which involves all the proper stakeholders will likely result in duplication of effort and conflicting assessments of technology development programs.

(2) Technology development is like life; it goes on. You can continue to search for and evaluate technology forever. Therefore, the scope of Technology Needs Assessment activities should be clearly defined and reasonable time constraints should be established based on the needs of Concept Evaluation Studies.

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1. **ELEMENT**: D44, TBS 1.2.1.6 (IFC 93-3)

2. **ELEMENT TITLE:** Update Database

3. **ELEMENT OWNERS:** Operating Command, Implementing Command, Product Center Development Planning Directorate (XR) and Program Development SPO (ASC/YX), Industry

4. **ELEMENT STAKEHOLDERS**:

a. Implementing Agencies: Department of Defense (DOD), Secretary of the Air Force (SAF), Implementing Command, Product Center XR and YX (ASC).

b. Supporting Agencies: Air Force Intelligence Support Agency (AFISA), Air Force Studies and Analysis Agency (AFSAA), Laboratories, Industry, Operating Commands.

5. **REQUIREMENT:**

a. Air Force Policy Directive (AFPD) 10-6, Mission Needs and Operational Requirements, 19 Jan 93: This directive requires the implementation of the DOD 5000 series documents, which in turn requires the maintenance of database.

b. AFPD 37-1, Information Management: (On order, upon receiving document, the definition will be constructed)

c. AFPD 63-1, Acquisition System: (On order)

d. AFR 55-43, Management Operations, Test and Evaluation, 29 Jun 90: This regulation describes the support document requirements and the Data Management and Analysis Plan.

e. Department Of Defense Directive (DODD) 5000.1, Defense Acquisition, 23 Feb 91: Establishes a disciplined management approach for acquiring systems and materiel that satisfy the operational user's needs.

f. DODD 8320.1, Data Administration, 26 September 1990: (On order).

g. MIL-STD-1388-1A, Logistics Support Analysis (LSA), 11 Apr 83: The goal of this standard is a single, uniform approach by the Military Services for conducting activities necessary to cause supportability requirements to be an integral part of system requirements and design, with documentation developed and maintained.

h. MIL-STD-499B, Systems Engineering, Draft: The decision database may be digital, defined by the Government or left open for contractor definition.

i. MIL-STD-1388-2B, DOD Requirements for a Logistics Support Analysis Record, 28 Mar 91: This standard is directed toward improving the cost effectiveness of the generation, maintenance, acquisition, and use of the technical data required to support an LSA program.

j. MIL-STD-1840A, Automated Interchange of Technical Information, 22 Dec 87: The purpose of this standard is to standardize the digital interface between organizations or systems exchanging digital forms of technical information necessary for the logistic support of weapon systems throughout their life cycle.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose of the Program Database is to provide a central location for the collection and storage of information/data. This information/data will support the Project Teams in making decisions that respond to external and internal requirements, (i.e. the information needs of milestone decision authority).

b. Objective: At this point the database is updated using Phase 0 project activities planned since the update of Project Database, D31.

7. DESCRIPTION:

a. The database is the update of information used and generated for integrated requirements and flowdowns; interface constraints and configuration alternatives, verifications; decision criteria, trade study assessments, and any other required documents. It includes physical and mathematical models, computer simulations, layouts, and similar configuration documentation and technical data, as appropriate. The performing activity selects the specific data entry media, storage, and maintenance procedures. At this stage the database captures the operational requirements development. Starting with the updated phase 0 plans, the contracted studies (D35) feed into Concept Exploration (D37) studies. It must contain significant information of use of off-the-shelf (Non Development , D27)) items as well as Cooperative Opportunities (D28).

b. The preliminary user of this stage of data depository is the Alternative Systems Review (D45) and Conducting the Comparative COEA Analysis (D48) and Program Alternative Analysis(D46). The data will be complemented from technology status information and will be used for further defining requirements and concepts.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: This is a continuous activity, intended to be current since established in D15, and updated in D31.

b. Exit: The Data Base will continually be updated throughout the pre-milestone 1 process and beyond.

9. KEY INPUTS AND OUTPUTS:

a. Input:

(1) From Concept Exploration Studies (D37)
- (a) Requirements Analyses
- (b) Updated COEA I Plans
- (c) Updated Systems Requirement Document (SRD)
- (d) Revised Baseline Concept Description (BCD)
- (e) Concept Synthesis and Evaluation
- (f) Effectiveness Evaluation

(2) Other approved pertinent data since D31

b. Output:
- (1) All above inputs can be utilized as outputs.
- (2) Other approved data from any source.

10. KEY REFERENCES: (In addition to those listed in Requirements, Paragraph 5)

a. Air Force Instruction (AFI) 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93: Identifies official Air Force information required for decision making and historical purpose and develop a schedule of the information life cycle to describe creation, maintenance, and disposition (AFI 37-123, Management of Records).

b. AFI 10-602, Logistics Support and Readiness Requirements: (On order, upon receiving document, the definition will be written.)

c. AFI 14-303, Threat Support, Acquisition Process: (On order).

d. AFI 16-501, Control and Documentation, Air Force Programs: (On order).

e. AFI 33-105, Information System, Standard Programs: (On order).

f. AFI 37-1, Information Management: (On order).

g. AFI 37-123, Management of Records: Identifies the activities to plan, design, model, synchronize, standardize and control Air Force Corporate data at all echelons.

h. AFI 37-150, Data Administration and Standards Program: (On order).

i. DOD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91: Establishes an integrated framework for translating broadly stated mission needs into stable, affordable acquisition programs that meet the operational user's needs and can be sustained, given projected resource constraints.

j. DOD Manual 5000.2M, Defense Acquisition Management Documentation and Reports, 23 Feb 91: This Manual implements relevant portions of DODD 5000.1 and DODD 5000.2. Specific responsibilities pertaining to major areas are provided in each individual section, as appropriate.

k. Implementing Command: Submit required acquisition program documents. (Defense Planning Guide, Mission Area Assessment, and Mission Needs Analysis, etc.).

l. MIL-HDBK-59A, DOD Computer-Aided Acquisition and Logistic Support (CALS) Program Implementation Guide: The purpose of this military handbook is to provide general information and detailed application guidance for contractually implementing CALS requirements in weapon system and related major equipment procurements.

m. MIL-HDBK-X499-3, Systems Engineering/Configuration Management, Draft: The decision database will provide an audit trail from initially stated needs and requirements to the current description of system products and processes.

n. Secretary of the Air Force (SAF/AAI): SAF/AAI will ensure compliance with DOD Corporate Information Management (CIM) to allow sharing of data with appropriate DOD agencies and other Government agencies.

o. Supporting Command: The Supporting Command will collect and process Integrated Logistic Support (ILS) information in the Logistics Management Information System (LMIS). Outline the actions, support, and documentation needed to establish maintenance requirements for on and off equipment throughout the life of the system. Identify data collection and analysis efforts that will continue after fielding of system equipment.

p. Using /Operating Command: The user will ensure data and management needs are identified. Integrate the Logistics Support Analysis process with the System Requirements Analysis activity. Outline the actions, support, and documentation needed to establish maintenance requirements for on and off equipment throughout the life of the system.

11. IMPLEMENTATION TOOLS:

a. Automated Data Processing (ADP) is available as Government Furnished Property (GFP).

Contact:

Director USAMC Logistic Support Activity
ATTN.: AMXLC-AL
Lexington, KY 40511-5101
606-293-4193 (Mr. David Henderson)

b. Computer-Aided Acquisition and Logistic Support (CALS): The repository of information used and generated at the appropriate level for the acquisition phase of integrated requirements and flowdowns; interface constraints and requirements; functional and performance requirements; system concept; preliminary design and configuration alternatives; details design; verifications; decision criteria; trade study assessments; system, subsystem, and functional capability assessments; and other required documentation.

(a) MIL-HDBK-59A
(b) MIL-STD-1840A

c. Systems and Logistics Integration Capability (SLIC): This is a state-of-the-art, DOD Type III validated, micro computer based LSAR system that can be used to completely satisfy all MIL-STD-1388-2A requirements with total independence from any other hardware and software.

(a) SLIC I
(b) SLIC II

12. PLANNING GUIDANCE:

a. DURATION: Update the database continuously throughout the life cycle of the product.

b. CONSTRAINTS:

(1) Identify computer resource constraints (examples include language, computer, database, architecture, or interoperability constraints).

(2) Database capacity (identify spare memory and throughput requirements, computer memory growth requirements, software partitioning and modular design requirements such as software module size, (e.g. no greater than 100 lines of code).

(3) Access capabilities

(4) Security restrictions

(5) Time

(6) Assumptions

(7) Funds

(8) Management Resources

(9) Training

c. **RESOURCES:**

(1) Facilities
- (a) Classified work space
- (b) Personnel office space and supplies
- (c) Database location

(2) Computer hardware and software programs
- (a) Analytical models
- (b) Program Management Software

(3) Security
- (a) Type of access required
- (b) Provide access for contractors

(4) Manpower
- (a) Security personnel
- (b) Computer systems personnel
- (c) Data management personnel

D. LESSONS LEARNED: (First two lessons transcribed from ALLCARS, the others are referenced)

(1) # 1982, Program Directors: Enhanced quality and quantity of information on the AFAM database. Improvements include additional lessons learned and best practices, updated references, increased number of tools such as software programs, document templates, samples, and courses. (Col. Ferrell, ASC/CYM, DSN 785-2213)

(2) #1344, Schedule Plan For A Source Selection: Develop a detailed plan for the execution of source selection that will aid the flow of data and provide expedient changes to contingencies. All data were computerized on an IBM program called "Super Project." The data were placed in a network to define the internal relationships of activities and resources and a Gantt chart was used to provide schedule suspense dates and serve as a tracking tool. By computerizing the data base "what-if" scenario's could be evaluated based on unknown contingencies (i.e., slip of data reviews, modifications to the proposals, personnel conflicts or absences). The database was used as a "living tool" to help manage 200 evaluators, 18 evaluation items, and 7 proposals. (POC will be added at later date.)

(3) # 1264, AFLC LMS Target Operating Environment.

(4) #1418, Internal Financial Management.

(5) #1888, Program Managers.

(6) # 1982, Program Directors.

(7) # 9020, Hardness Surveillance Test Systems (PHSTS).

(8) # 9063, Air Force Electronic Combat Office (AFECO).

(9) # 9115, ASIAC.

(10) #9116, Reliability Analysis Center (RAC).

E. BEST PRACTICES: Use MIL-HDBK-59A, DOD CALS Program Implementation Guide, and MIL-STD-1840A, Automated Interchange of Technical Information to control data storage with frequent backups to avoid the loss of data.

F. TRAPS: Noncompatible CALS systems have problems with nonstandard terminology used to file or retrieve data.

1. ELEMENT: D45, TBS 1 2.1.5 (IFC 93-3)

2. ELEMENT TITLE: Conduct Alternative System Review (aka- Concept Alternatives Review (CAR))

3. ELEMENT OWNER(S): Project Cadre (at ASC, it is typically YX; at other Product Centers, it is XR members); Project Cadre consists of a core of functional representatives, e.g. operating, implementing, and support commands, product and logistic centers, laboratories, etc.

4. ELEMENT STAKEHOLDER(S):

a. Project Cadre,
b. Product/Logistics/Test Centers,
c. Operating, Implementing and Supporting Commands,
d. Laboratories,
e. Intelligence Agencies.

5. REQUIREMENT:

a. DODI 5000.2, Defense Acquisition Management Policies & Procedures, Jan 91:
(1) Part 2, Section B, General Policies & Procedures,
(2) Part 4, Requirements Evolution and Affordability, and
(3) Part 7, Logistics & Other Infrastructure for total system concerns;

b. DODI 5000.2-M, Defense Acquisition Management Documentation & Reports, Feb 91:
(1) Part 3, Operational Requirements Document, and
(2) Part 8, Cost and Operational Effectiveness Report;

c. Military Standard (MIL-STD)-499B, Systems Engineering, Draft May 92, Section 3.8, Systems Engineering Process.

6. PURPOSE/OBJECTIVES:

a. Purpose: The CAR is a comprehensive integrated review activity that is conducted to examine the systems analysis products for each concept alternative under consideration. It supports the determination of the completeness of the concept explorations and is the basis for recommending which system/subsystem/equipment concepts should continue as candidates for application in the Cost and Operational Effectiveness Analysis (COEA).

b. Objectives: The objectives are to assess:

1) development of each concept alternative for its ability to satisfy identified customer needs and operational objectives,

2) the factors (performance, cost, schedule, risk) for achievable/affordable development, and

3) the accomplishments of the planned-for or contracted-for tasks against the Systems Engineering Master Plan (SEMP) criteria.

7. DESCRIPTION:

a. The CAR is conducted by the Project Cadre and may be a one-time occurrence or a sequence of interim activities. Whichever approach is selected, the implementing command's system developer is usually the host/chair at appropriate government or contractor(s) facilities. If an interim approach is selected, a final wrap-up session to assure overall system integration is necessary. Attendance at the reviews should include the Project Cadre and those government personnel with special

contributing interests; e.g. intelligence source, interfacing systems/equipment, etc. The details of topics to be reviewed are in the same scope as those identified for an Alternative System Review (ASR); see Paragraph 5.9.3.4.2 of Ref (c) in Section 5, above for more details on the ASR.

b. The efforts and products of the activities from D37, Conduct Concept Exploration Studies (e.g. systems analyses, such as functional analysis, mission analysis, performance analysis, conceptual design/synthesis, and performance and effectiveness trade studies) are reviewed and assessed for applicability, thoroughness, consistency and validity. The operational and functional requirements from D37 are also evaluated for each alternative concept's ability to satisfy the need specified in the Mission Need Statement (MNS) (C21). The overall satisfaction of conditions and rquirements listed in the Program Management Directive (PMD) is also checked. Concept configurations, as documented in the Baseline Concept Description (BCD) during D37 execution, are used as a basis to assess each concept for MNS satisfaction. They are also assessed in conjunction with the performance and effectiveness trade studies, achievability, technology availability and cost estimates. These are important aspects to be used in the COEA I that follows which will be determining relative areas of concept risk, effectiveness, and affordability.

c. During the review, the concept candidates are evaluated for their worthiness for application to the COEA I (which will be providing system component descriptions - a level 2 focus - for selection of preferred concepts for further study in Demonstration and Validation (Dem-Val) Phase). The Risk Analysis for each concept is assessed, as is the risk reduction strategy, in the Risk Management Plans. Also identified are preliminary areas that would be required to be addressed in Dem-Val by contractor participants; in particular, recommendations for Dem/Val Prototyping and Validation testing for risk reduction. The CAR is also used to initiate the coordination of the System Requirements Document (SRD) and the draft Operational Requirements Document (ORD). A strawman outline is generated for the related Requirements Correlation Matrix (RCM) (C19). The SEMP entrance criteria (readiness) is applied for the CAR events and the exit criteria (accomplishment) is applied for completion (C21). The results are documented and normally incorporated into the project database (D46).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: This activity can begin when sufficient concept exploration tasks have been completed and required data is available.

b. Exit: This activity concludes when the reports to decision makers (i.e. COEA I CAG) on the concept alternatives are approved, and the SEMS accomplishment criteria have been declared met (see Section 5, Ref c).

9. KEY INPUTS AND OUTPUTS:

Inputs: a. D37 results (Conduct Concept Exploration) and D44 updates (Data Base), (e.g. Requirements Analyses, Conceptual Designs, Studies and Analyses, Functional Architectures, Specification Trees, Work Breakdown Structure (WBS), SRDs, SEMS, Risk Management Plan & BCDs)
b. MNS.
c. PMD.
d. Interim review minutes, including SEMP, Contract Statement of Work, Contractor Briefings and SEMS.
e. Draft ORD.

Outputs: a. "Changes" to Technical Data (D46).
b. MNS Satisfaction Report (C21).
c. Outline of Technical Exit Criteria for Phase I (C21 & D46).
d. SEMP Report (C21).
e. Minutes - from reviews of each concept (D46).

f. Strawman RCM. (C19).

10. KEY REFERENCES:

Section 5, Requirement(s) plus:

a. AF Sup 1/ DODI 5000.2, Acquisition Management Policies & Procedures,Sep 92, Part 2, Section B, Policies for interface management.

b. MIL-HNBK-499-3, System Engineering / Configuration Management (SE/CM) - Life Cycle Application, Draft Aug 92, Guidelines for system reviews.

c. MIL-STD-1521, Technical Reviews and Audits for Systems, Equipments and Computer Software, Appendix A, 1988.

d. Systems Engineering Management Guide, DSMC, Jan 91,Identification of relevant directives and references for systems engineering concepts.

11. IMPLEMENTATION TOOLS:

a. System Review Outlines from Systems Engineering Management Guide.

b. MIL-STD-499B, Systems Engineering, Section 5 - Detailed Requirements and Appendix C - General Guidance on the Conduct of Technical Reviews.

c. MIL-STD 1521, Technical Reviews and Audits for Systems, Equipments, and Computer Software.

12. PLANNING GUIDANCE:

a. DURATION: Equivalent to 1-3 day review for each alternative (or grouping of) concepts.

b. CONSTRAINTS: Matching the level of detail developed with that expected / needed by the COEA Concept Advisory Group (CAG); see C16, Update Phase 0 Plans.

c. RESOURCES: Project Cadre, including Operating Command, PC/ALC, Laboratory, System Program Director/Product Group Manager/Material Group Manager (SPD/PGM/MGM).

d. LESSONS LEARNED:

1) Incremental reviews can be more efficient and effective by allowing concerted scrubs on specific functional areas.

2) Reviews should be segregated by concepts to permit a more focused effort.

3) Specific meeting agendas and responsibilities should be developed as a means of tracking progress and staying on track during the review and knowing where/who has key review functions.

e. BEST PRACTICES: None Identified.

f. TRAPS: Acceptance of verbal presentations and commitments; documentation is very important.

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1. ELEMENT: D45B, TBS 1.2.4.4 (IFC 93-3)

2. ELEMENT TITLE: Preferred Alternatives Review (PAR)

3. ELEMENT OWNER(S): Project Cadre (at ASC, it is typically YX; at other Product Centers, it is XR members); Project Cadre consists of a core of functional representatives, e.g. operating, implementing, and support commands, product and logistic centers, laboratories, etc.

4. ELEMENT STAKEHOLDER(S):

a. Project Cadre.
b. Product/Logistics/Test Centers.
c. Operating, Implementing and Supporting Commands.
d. Laboratories.
e. Intelligence Agencies.
f. USAF/XO & SAF/AQ.

5. REQUIREMENT:

a. DODI 5000.2, Defense Acquisition Management Policies & Procedures, Jan 91:
(1) Part 2, Section B, General Policies & Procedures.
(2) Part 4, Requirements Evolution and Affordability.
(3) Part 7, Logistics & Other Infrastructure for total system concerns.
(4) Part 11, Sections C, D & E, Program Control and Review.

b. DODI 5000.2-M, Defense Acquisition Management Documentation & Reports, Feb 91:
(1) Part 1, Procedures and formats for use in preparations for milestones, reviews and other key decision activities.
(2) Part 3, Operational Requirements Document.
(3) Part 8, Cost and Operational Effectiveness Report.

c. Military Standard (MIL-STD)-499B, Systems Engineering, Draft May 92, Section 3.8, Systems Engineering Process.

6. PURPOSE/OBJECTIVES:

a. Purpose: This PAR activity is a comprehensive quality review, particularly with respect to the system component and configuration item (WBS level 3) details, before approving for transfer to the Lead MAJCOM for their *MS* 1 decision package.

b. Objectives: The objectives are to:
(1) ensure consistency and level of detail for the preferred alternative(s),
(2) update and finalize documentation of outlines for the Plans, Schedules and System Descriptions,
(3) define technical goals and objectives for Phase 1 program,
(4) finalize plans for identified risk reduction efforts.

7. DESCRIPTION: The PAR is conducted by the Project Cadre and may be performed more than once, (i.e. interim reviews). It is to assess the technical adequacy and scope of the alternative(s), defined in Concept Definition for Preferred Alternative(s) block D37B, including the interface and operability issues. An emphasis should be placed on reviewing areas for reducing the risk of critical aspects of the preferred concept alternative and improving plans for the development of the system specification. These reviews determine whether each of the primary system functions have been adequately addressed to surface any subsystem issues and to support system planning. The details of topics to be

reviewed are in the same scope as those identified for a System Requirements Review (SRR); see Paragraph 5.9.3.4.3 of Ref (c) in Section 5, above for more details on the SRR.

This is the final scrub of the details that are developed for the preferred concept alternative(s) being proposed for the next phase of the acquisition, i.e. Phase 1 - Dem/Val. Updates and content approvals for several important documents are included, such as the System Engineering Master Plan (SEMP), Test and Evaluation Master Plan (TEMP), Integrated Logistics Support Plan (ILSP), Risk Management Plan (RMP), etc. Descriptions of these and additional documentation required for the MS I decision are given in ref (a) of Section 5. A critical item to be refined is the plans for the next phase that address those key risk areas that have also been determined to be critical design drivers. Any associated technology development areas should be closely tied to the definition of the risk reduction, with options identified as backup position(s). The Milestone Decision support package and critical shortfalls should be identified and Research & Development requirements established for Phase 1 efforts.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: This activity can begin either during or after the complete development of the preferred alternative(s) details.

b. Exit: This activity concludes when it has been verified that the level of detail is sufficient and consistent for the alternative(s) and that feasibility for meeting the functional and system requirements is confirmed by the Project Cadre.

9. KEY INPUTS AND OUTPUTS:

Inputs:

a. From D37B - Concept Definition for Preferred Alternative(s)
   (1) System details
   (2) Life Cycle and Design to Cost Estimates
   (3) System/Cost Effectiveness Analyses
   (4) Survivability/Vulnerability Estimates
   (5) Supportability Analyses

b. From C19 - Develop Draft ORD I
   (1) Mission Need Statement (MNS)
   (2) Operational Requirements Document (ORD)/Requirements Correlation Matrix(RCM)

c. From B10 & C16 - Program Management Decision (PMD)

d. From D49 - Updated Database
   (1) Trades/sensitivities from Preferred Alternatives
   (2) Enabling Technologies - Advanced Technology Transition Demonstrations(ATTD's)
   (3) Performance & Effectiveness Analyses
   (4) Areas of Risk

e. From C25 - Select Preferred Alternative(s)
   (1) Design Constraints
   (2) Lead MAJCOM Comments

Outputs:

a. Primary source of technical details for the *IASP* Operational Roundtable (D67), such as:

(1) updates to following documents: SEMP, SEMS, SRD, TEMP, ILSP, WBS, Manufacturing Capability Assessment, Supportability Analysis, Maintenance Plan, Functional Element Tree, System Specification Outline, RMP, PPP, Pollution Prevention Action Plan, Integrated Program Summary.

(2) "Changes" to Technical Data.
(3) MNS Satisfaction Report.
(4) Outline of Technical Exit Criteria for Phase I.
(5) Minutes - from reviews of each concept.

b. Source of data for updates to Cost Analysis Requirements Descriptions - CARD. (D72)

10. KEY REFERENCES:

Section 5, Requirement(s) plus:

a. AF Sup 1/ DODI 5000.2, Acquisition Management Policies & Procedures, Sep 92, Part 2, Section B, Policies for interface management.

b. MIL-H IBK-499-3, System Engineering / Configuration Management (SE/CM) - Life Cycle Application, Dra Aug 92, Guidelines for system reviews.

c. MIL-STD-1521, Technical Reviews and Audits for Systems, Equipments and Computer Software, Appendix A, 1988.

d. Systems Engineering Management Guide, DSMC, Jan 91, Identification of relevant directives and references for systems engineering concepts.

e. MIL-STD 1388-1A, Logistics Support Analysis.

f. MIL-STD 1528, Manufacturing Management.

g. AFR 19-17, Environment Protection Pollution Prevention Program.

11. IMPLEMENTATION TOOLS:

a. System Review Outlines from Systems Engineering Management Guide.

b. MIL-STD-499B, Systems Engineering, Section 5 - Detailed Requirements and Appendix C - General Guidance on the Conduct of Technical Reviews.

c. MIL-STD 1521, Technical Reviews and Audits for Systems, Equipments, and Computer Software.

12. PLANNING GUIDANCE: This review may be accomplished through several interim reviews and/or a final, overall, system-level review. It is a cooperative activity with the Project Cadre manager having overall responsibility and the operating MAJCOM member exercising approval authority.

a. DURATION: Actual review of 3-4 days, with the wrap-up and finalization of the documentation and system summary covering an additional 3-6 weeks by the Project Cadre.

b. CONSTRAINTS: Availability of sufficiently developed detail information to support the system component and configuration item (WBS level 3 and below) details review.

c. RESOURCES: Entire Project Cadre; potentially requesting consultation/advice form functional area "experts"; *SPD/PGM/MGM* members particularly important.

d. LESSONS LEARNED:

1) Incremental reviews can be more efficient and effective.
2) Ensure concept(s) have been developed in comparable detail across all functional areas.
3) Specific meeting agendas and responsibilities should be developed.
4) Build and maintain options in the design and implementation of complex systems for as long as possible.

e. BEST PRACTICES:

1) Create a formal operating procedure for PARs.
2) Develop an acceptance criteria that matches the defined levels of success.

f. TRAPS: The most serious shortfalls or weaknesses are generally "built-in" due to the following factors:

1) Ill-defined purposes with poor resource allocation.
2) Inherently conflicting, but unresolved, priorities.
3) Poor definition of the success or acceptance criteria.
4) Concept designed around a nonexistent need or niche.
5) Too little consideration to reaction of the threat.

1. ELEMENT: D46, TBS 1.2.3.4 (IFC 93-3)

2. ELEMENT TITLE: Conduct Program Alternatives Analysis (PAA) (*It is important to note that the PAA is not a practice which is currently in place at any of the product centers. This entire concept is presented as an opportunity for improvement even though it is described here as an existing event).*

3. ELEMENT OWNER(S): Recommend this process be AFMC/XR at the HQ Level and ASC/YX at the ASC Level (other product centers need to identify an owner in their organization -- the XRs seem like the most likely candidates).

4. ELEMENT STAKEHOLDER(S): Virtually everyone involved in the decision making process for a new acquisition below the Air Staff Level is a stakeholder in this process:

- ASC/XR
- Project/Program Managers
- Key Functional Project/Program Team Members
- Program Executive Officers (PEOs)
- Operational Users (both the operators and the maintainers)

5. REQUIREMENT: Essential to any effort attempting to pursue good business practices. Recommend ASC/YX, in conjunction with AFMC/XR, develop a guide similar to that developed by ASC/CYX for the RFP preparation. This process would also need to be included in the IASP process already owned by AFMC/XR.

6. PURPOSE AND OBJECTIVES:

a. Purpose: The purpose for including this process is to ensure that the business, financial, and political risks are examined for each concept being considered during Concept Exploration. The following statements summarize the purpose for conducting the Program Alternatives Analysis:

1) Characterize Program Risks for Each Alternative Under Consideration

2) Match Program Development Options with Alternatives

3) Provide User Insight into Program Development Impacts

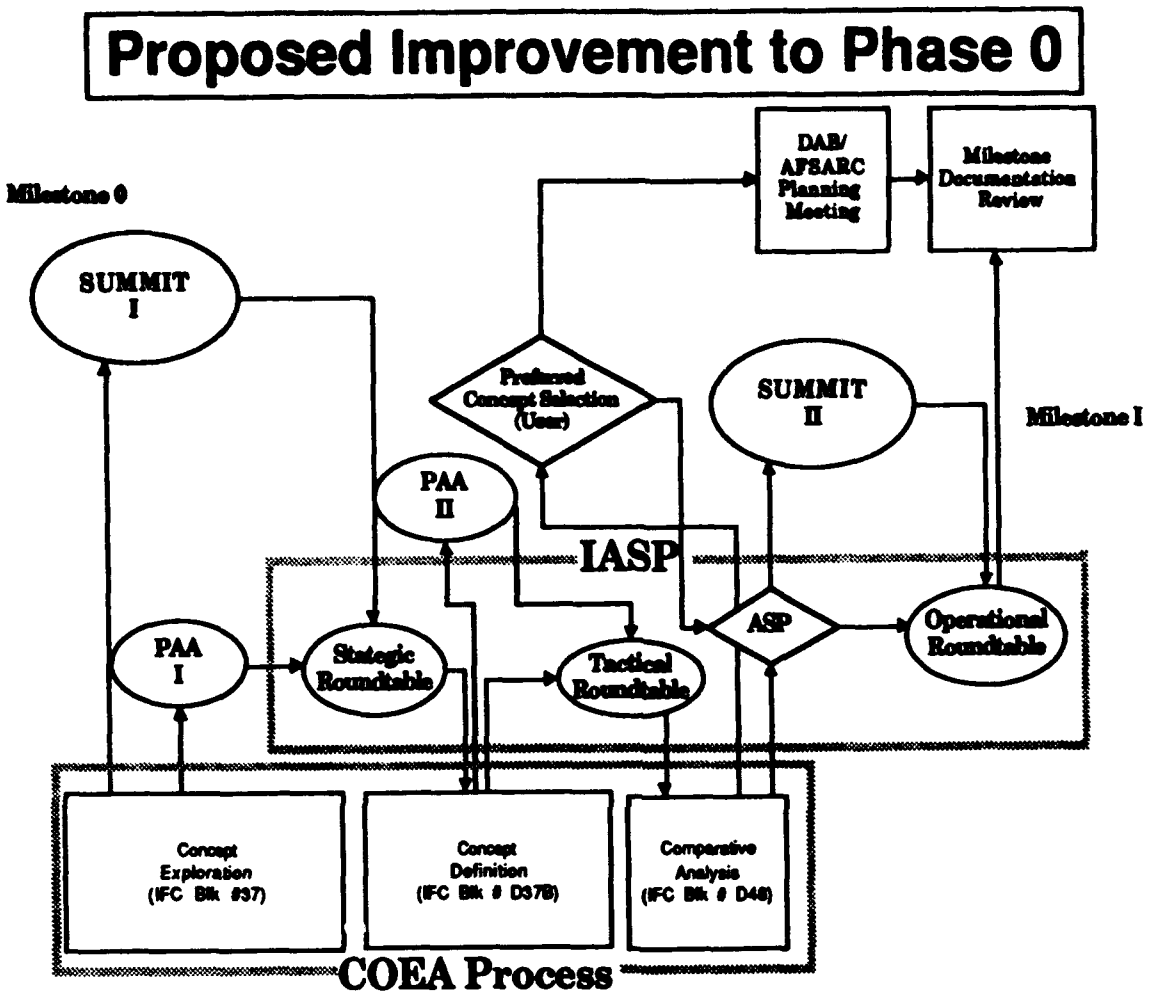
b. Objectives: There are three main objectives:

1) Ensure the concept or concepts which are chosen to go forward into the second half of Phase 0, Concept Definition, are selected based on overall programmatic risk (to include technical risk) rather than purely technical risk. This should produce an overall project/program package which is far more executable than one based solely on its technical prowess.

2) Present the User and the Development communities with some realistic programmatic expectations for the concepts being considered.

3) An objective is <u>not</u> to stifle industries' creativity in any way. Each of the concepts presented through the trade studies needs to be considered. Innovative new designs and concepts may require corresponding innovative new business practices.

7. DESCRIPTION:



Operating from the age old axiom that "a picture is worth a thousand words," this simple chart is provided in an attempt to cut down on the text. This top-level illustrative example is a suggestion on how we could improve the existing Phase 0 process. A number of the activities have been shuffled around or moved earlier in the process to allow for the earlier considerations of the programmatic constraints. By doing this, these considerations should provide some leverage in the selection of the preferred concept. Provided below is a brief description of the new blocks to show how this proposed process would work.

- Summit I -- There is currently no such activity this early in Phase 0. The goal of the summit is to provide top-down direction as to the need and the initial requirements. This will prevent the Strategic Roundtable from turning into a requirements summit and allow them to focus on providing strategic guidance to the project leader. The Summit I should consider the analysis work accomplished Pre-Milestone 0 as well as the more detailed analysis accomplished in the first round of Concept Exploration (CE), comments from the JROC, and incorporate the direction provided by the Milestone 0 Acquisition Decision Memorandum (ADM) and the Program Management Directive (PMD). The direction from this activity needs to feed directly into the Strategic Roundtable.

- Program Alternatives Analysis I (PAA I) -- This is the second key input necessary for the Strategic Roundtable to provide broad based programmatic strategic guidance. This input would define (to the limits realistically possible at the early point in the project) the:

- Resources required to pursue each of the concepts being considered. To include manpower, facilities, and dollars.

- Industrial base considerations for each concept.

- Possible program risks for each concept. To include schedule, financial, and political which might involve competing with existing programs.

- Best Business Practices and their applicability to each of the potential concepts.

- Technical Risks as determined through Concept Exploration.

In short, this is an analysis of potential problems a program might encounter for each of the concepts under review. The development community has generally done a fairly good job defining the technical risk involved in a new concept; the shortfall has been in defining the numerous other risks which the project/program team will encounter as they execute their acquisition.

- Program Alternatives Analysis II (PAA II) -- This is a repeat performance of the PAA I at a higher level of refinement. The output of this session will be to the Tactical Roundtable for the development of the Acquisition Strategy for each of the concepts being forwarded for comparative analysis. This will allow the user to base his Preferred Concept Selection decision (IFC blk #C25) on more than just the technical merit and cost estimate for each of the concepts. The users decision will be based on both of these factors and a "big picture" program executability analysis for each of the concepts.

- IASP -- The only real change in the IASP is that the entire process is moved much earlier in the concept exploration process. As it exists today, the Strategic Roundtable doesn't even convene until after all the technical analysis activities are basically complete, the COEA is complete, and the ORD has been written. The way the IASP is being used today is to properly package what has already accomplished in order to present the project story to the Milestone Decision Authority (MDA). This is an extremely important task, but does not take full advantage of the experience and brain power sitting around the table. By moving the IASP earlier in the concept exploration process and providing them with top-down direction from the Summit I and bottoms-up inputs from the Concept Exploration activities regarding technical risk as well as a PAA look at the programmatic risks which might be encountered with each of the concepts under consideration, the Strategic Roundtable has been equipped with the tools necessary to perform their tasking -- make informed up-front acquisition strategy decisions(IFC blk #D57).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance into this process would be possible when the development community receives the Milestone 0 PMD (IFC blk # B10). You will also be able to adequately understand the need and have some initial ideas to the top-level requirements (IFC blk # D23).

b. Exit criteria for the overall process as described above have been met when you have assembled a data package describing an executable program which identifies the technical, financial, programmatic, and political risks involved with committing to a new start on a given concept and offers a set of potential methods for dealing with these risks.

9. KEY INPUTS AND OUTPUTS:

a. Key inputs would include:

- Milestone 0 Acquisition Decision Memorandum (ADM) (IFC blk #A09) and the Program Management Directive (PMD)(IFC blk #B10).

- Assessment from the Concept Exploration activities (CE) (IFC blk #D37).

- Updated version of the Phase 0 (IFC blk # D22) plan which will include revisions based on the Milestone 0 DAB (via the ADM and PMD) and any redirection or focusing by the Concept Action Group (CAG - if this group is being used) (IFC blk # C16).
- Minutes from the Alternative Systems Review (ASR) (IFC blk # D45)
- Feedback to and from the Cost and Operational Effectiveness Analysis (COEA) activities (IFC blk #D48) which are being conducted concurrently with the Program Alternatives Analysis.

b. The key **outputs** would be:

- Preliminary Project Office Cost Estimate (IFC blk #D47).
- Recommendations from the Program Alternatives Analysis I and II should be included in the updated project data base (IFC blk #D49).
- Recommendations from the Program Alternatives Analysis I would also be the basis for developing the Preliminary Acquisition Strategy Report (ASR) (IFC blk # D58).
- Notes from PAA I will be a primary input to the Strategic Roundtable (IFC blk # D57).
- Recommendations from the Program Alternatives Analysis II would be the basis for developing:
  - Initial program Cost and Schedule objectives at the Tactical Roundtable (IFC blk #D59).
  - Acquisition Strategy Report (ASR) (IFC blk # D60).
  - The notes from these sessions (particularly PAA II) would be a critical input for the User to make his Preferred Alternative Selection (IFC blk # C25).

10. KEY REFERENCES:

Since this activity is being presented as a suggested improvement to the Phase 0 flow of activities, there are no real references. However, the Program Alternatives Analysis is in keeping with the general philosophy of the following sources:

- DoDI 5000.2, Change 1, 10 Mar 93.

- DoD 5000.2 Manual, Change 1, 10 Mar 93.

- AFMC Pamphlet 800-7, Integrated Acquisition Strategy Process , 20 Nov 92

11. IMPLEMENTATION TOOLS: ASC/YX Flowchart and this data sheet.

12. PLANNING GUIDANCE:

A) DURATION: The time required to conduct the Program Alternatives Analysis I will vary greatly depending on the number of concepts being considered. For most major potential new starts, plan on a week-long working group. For Program Alternatives Analysis II, the concepts would likely be fewer but the level of detail would be greater...plan on another week-long session.

B) CONSTRAINTS: The PAA is not a recognized event. The primary constraint will be in convincing the user and development communities of the value added in considering programmatic risks early-on in the Phase 0 process.

C) RESOURCES: The only resources required would be persons knowledgeable in programmatic risks areas. ASC/YX would be an excellent first step in putting together your PAA team.

D) LESSONS LEARNED: There has never been a formal PAA; however, there are hundreds of examples of the hazards involved with basing your concept selection on purely technical risks and failing to consider programmatic risks early in the Phase 0 process.

E) BEST PRACTICES: Accomplishing a PAA is in itself a best practice.

F) TRAPS: If you see your program requirements starting to gravitate towards the "brightest and shiniest" new technology on the market, beware! It will be a very rare case when a totally new technology is the only possible solution to a given need. This new technology may be the 100% solution, but consider whether the answer to the user's bona fide need would be better served by pursuing an 80% solution that has greatly reduced and manageable technical and programmatic risk.

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1. **ELEMENT:** D47, TBS 1.2.3.6 (IFC 93-3)

2. **ELEMENT TITLE:** Update Program Cost Estimate

3. **ELEMENT OWNER:** ASC/FM

4. **ELEMENT STAKEHOLDER(S):** Hq USAF, Operating Command, Program Element Monitor (PEM), Project Team, ASC/AL.

5. **REQUIREMENT:** ASDR 173-1, Aeronautical Systems Division Cost Analysis Program, 17 Jan 89, defines the cost estimating responsibilities and requirements for project/program offices at ASC, and provides comprehensive guidance on estimate documentation. The requirements remain the same, regardless of ACAT level.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this activity is to generate and document an estimate of the financial requirements of the anticipated program.

b. Objective: The objective of documenting a program estimate at this time is to support the budget process - if there is an opportunity to submit a budgetary wedge for the anticipated program in the Air Force Program Objective Memorandum (POM), this estimate documentation would serve as the basis for the budget submission. The documentation would also be utilized to support any budget or cost analysis reviews by the Operating Command. Further, the documentation could be utilized as a preliminary tool to summarize programmatic information on the anticipated program prior to completion of the Cost and Operational Effectiveness Analyses (COEA) and selection of the recommended program alternative. The scope of the estimate should be as complete as possible, and address all life cycle costs of the program. However, at this phase of the project, it may only be possible to estimate the program requirements that can be included in the POM - only limited content and fiscal years.

7. **DESCRIPTION:** The development of this cost estimate can be grouped into five major activities which are summarized below. The reader will find a description of these tasks in Chapter 3, Vol. 1 of the referenced AFSC Cost Estimating Handbook. In addition, more detail is provided in other chapters of the handbook as noted:

a. Defining the estimate - this effort consists of defining the program to be estimated, determining the scope of the estimate, assembling the estimating team and assigning responsibilities, and defining estimate groundrules, assumptions, and constraints. The estimating team should consist of the cost analysts and all functional support personnel identified to support the estimating effort. This should be documented in the estimate plan, and approved by the project manager. The estimate plan should contain a schedule for the estimating activities based on the estimated time required to accomplish the following estimating tasks. The time required for each of the activities can be expected to vary for every estimate, depending on the size and experience level of the team, prior research and estimating efforts for the program, etc. Specific sources of information which should help define the program to be estimated are contained in Key Inputs (Section 9.a.), which follows (Chapter 4).

b. Research - the cost analysts perform initial research to determine appropriate estimating methodologies, and perform data collection to determine if information can be obtained to support the selected estimating approach(es) (Chapter 5).

c. Develop the estimating approach - the preliminary estimating methods are selected, and any estimating tools are designed or updated, as appropriate (Chapter 6).

d. Perform estimate and crosschecks - the analysts generate the detailed estimates and verify the results with any appropriate crosschecks to ensure the results are logical, reasonable, and complete. [Note: An estimate documented to support either a milestone review or a budget submission must reflect a "point estimate." However, if possible, the estimators should provide estimate ranges to the decision makers to aid in the estimate review and approval process] (Chapter 4, Paragraph 4.5.3.).

e. Documentation and approval - the estimate must be documented and provided to project management for approval. This process usually involves presentation of the estimate to the senior program and functional managers assigned to the project. After approval, the estimate becomes the official program estimate, and should be the basis for all program estimate "what ifs" and budget submissions until superseded by another formal program estimate. The reader should refer to Chapter 22, of the referenced AFMC Cost Estimating Handbook, or ASDR 173-1 for more detailed information on ASC estimate documentation requirements.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The need for an estimate of program costs at this point should be dependent on the ability to interject the estimated program costs into the Air Force Program Objective Memorandum (POM) to establish a preliminary financial position for the anticipated program. The POM submission will only address the years in the Future Year Defense Program, and the program may not have any activity in those years. If it is not expected that the estimate can be utilized for the POM, formal estimating activity may be deferred until the COEA analysis is performed, and the preferred program option has been determined. However, the cost analyst should begin collecting data and planning formal estimating activities at this time.

b. Exit: If the estimate is to be submitted for inclusion into the POM, it must first be reviewed and approved by the project manager and the project OPR in the Operating Command. For discussion purposes, it is assumed that this will be the Concept Action Group (CAG) in the Operating Command (C16). Note: The formal estimate discussed here should not be confused with the normal, almost continuous cost analysis and estimating that is performed in a project office. However, whether a "what-if" or formal estimate, the estimates should be documented, tracked, and archived as part of the project database.

9. KEY INPUTS/OUTPUTS:

a. Inputs: At this stage of the project, typically only minimal technical and programmatic information is available. However, to derive even a top level estimate of potential costs, the project team must develop a minimal program framework which can be priced out. Necessary information would include system description (to the extent possible), development and production schedules, quantities, and acquisition strategy. The source of this information would be functional (engineering, manufacturing, contracts, logistics, test and management personnel) and the Operating Command personnel. In addition to providing detailed information on their functional areas, these experts will need to support the cost estimators by identifying analogous programs, and aiding in the development and justification of the selected estimating relationships. The results of the Concept Exploration Studies (D37), COEA Comparative Analysis (D48), Program Alternatives Analysis (D46), and the updates to the Program Database (D49) should provide information on potential program alternatives. This information should be useful in providing necessary program information which would support program definition for the purpose of developing this cost estimate.

b. Output: The results of the analysis should be formally documented and approved by the project manager and archived in the project database. The documentation should include all

groundrules and assumptions and programmatic information necessary to replicate the estimate and fully support cost relationships utilized. If the estimate will be utilized to support a budget submission, the documentation should be accomplished in accordance with ASDR 173-1. The results of the analysis can be used by the Operating Command to support the preferred alternative(s) selection (C25), and to update the project budget requests (C22).

c. Follow-on activities: If the estimate is to be included in the Air Force POM, it will need to be provided to the Operating Command Concept Action Group (CAG) for review and approval, prior to the submission in the POM process. Historically, the POM call to AFMC organizations is in the summer of each odd-numbered year. To satisfy this schedule, the project team should plan to have the estimate completed, and approved by the CAG by the end of May. The estimate can then be incorporated into the field POM submission to the Operating Command, or the CAG may input and support the estimate during the Operating Command POM review. The estimate should then be included in the Operating Command POM submission to USAF. If approved, the estimate would be included in the Service (Air Force) POM submission to OSD, usually in April of the even-numbered years. The inclusion of the estimate into the Air Force POM is critical in that it is the first step in identifying and programming financial requirements in the budget process. If the estimate is not approved and converted into budgetary requirements lead time away from the required time for the funding, the project will incur schedule delays until funds are available.

10. KEY REFERENCES:

a. AFR 173-1, The Air Force Cost Analysis Program, 3 Oct 80 - Establishes the Air Force Cost Analysis Program, specifies objectives and functions, and assigns responsibilities.

b. AFR 173-11, Independent Cost Analysis Program, 7 Oct 86 - Identifies requirements for Independent Cost Analysis and Program Office Estimates.

c. AF Sup. 1/DoDI 5000.2, Aug 92 (DRAFT), Part 10A - Air Force cost estimating requirements.

d. AF Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, paragraphs 1.3.10, 1.4, Attachments 1, 2, and 5 - Provides guidance on the CAG and COEA.

11. IMPLEMENTATION TOOLS: ASC/FM can provide information on the following cost analysis aids and tools:

a. The AFSC Cost Estimating Handbook, Vol I (undated) - estimating and documentation information.

b. The AFSC Financial Management Handbook, Nov 92 update- financial information.

c. The ASC/FM Cost Workstation - a computer automation aid and application tool.

d. ASC Cost Data Center - historical cost data, cost models, and other cost related materials and references.

e. AFMC Cost Estimating Handbook, Vol. II, Aeronautical, 21 Sep 92 - estimating and documentation information.

12. PLANNING GUIDANCE:

a. DURATION: The time required to perform and document an estimate must be planned based on the specific conditions and methodologies chosen. The time can be expected to vary for every estimate depending on the program complexity, data availability, and the size and experience level of the estimating team. Early in the program life cycle, estimating activities are typically based on parametric analysis and should take 2 to 4 months. Again, this can't be considered firm; the time required to perform and document an estimate must be planned based on the specific conditions and methodologies chosen.

b. CONSTRAINTS: The greatest limitations in the performance of the estimate are lack of program definition, and the lack of relatable historical cost information. If sufficient personnel aren't assigned to accomplish the analysis in time to meet the required schedule, support should be requested from staff home offices or the Program Development SPO (ASC/YX).

c. RESOURCES: The estimate is usually performed by one or two cost estimators, working the estimate as a primary duty. Operating and Support cost estimating support from ASC/AL may also be required if the project office does not have the in-house capability to perform this analysis. Engineering, logistics, test, and program management personnel should be formally assigned to the team, even if dedicated only part time, and they can be expected to need to provide 40 - 80 hours each for technical support. Computer assets should be considered a necessity for both estimate computation and documentation.

d. LESSONS LEARNED: The Cost Staff (ASC/FMC) should be contacted to have a staff cost analyst focal point assigned to support the analysis effort. This analyst will be a valuable resource in aiding in data searches and estimating methodology selection. The analyst can be a valuable asset in supporting management reviews. Further, the cost staff may be able to provide analysts to perform elements of the estimate or to perform schedule analysis. It should be expected that many program variations and estimating excursions will be performed to support the decision making process and each of these should be documented and tracked by both program content and estimate results. Failure to do so could result in significant rework and loss of credibility. This estimate should provide an estimating baseline - formal estimates which follow this analysis should contain a track to this estimate, including rationale for changes.

e. BEST PRACTICES: The cost analyst should develop a comprehensive estimate plan which defines program content, describes the estimating approach and the estimate schedule, identifies estimate team members and assigns responsibilities, and identifies estimate groundrules and assumptions. The management approval of this plan should ensure the commitment of necessary resources, and baseline the program to be estimated. Lack of a comprehensive plan may result in unnecessary perturbations, rework, and schedule slips.

f. TRAPS: It is imperative that the cost analysts identify methodologies and data requirements as soon as possible so that these needs can be made known. If this information is not available, work-arounds must be made as soon as possible to maintain the estimating schedule and support the POM input schedule. Also, it is essential that the estimating and functional team members be carefully selected, so that all information necessary to support the estimating process can be provided in a timely manner.

1. **ELEMENT:** D48, TBS 1.2.3.3 (IFC 93-3)

2. **ELEMENT TITLE:** Conduct Cost and Operational Effectiveness (COEA) Comparative Analysis

3. **ELEMENT OWNER:** Operating Command

4. **ELEMENT STAKEHOLDER(S):**

Aeronautical Systems Center (ASC)/YX
Product Centers/XR/Functionals
ASC/System program offices if they are impacted by the project or if they will inherit the program at Milestone I/IV
Air logistics centers impacted by the potential program
Headquarters (HQ) Air Force Materiel Command (AFMC)
Air Education and Training Command (AETC)
HQ USAF and department of defense offices that will review COEA I report during the Milestone I decision process. *Some of these are:*

OSD/PA&E
Defense Acquisition Board (DAB)
Defense Intelligence Agency
Secretary of the Air Force (SAF)/AQ/FMC
HQ USAF/XOR/XOW/SC/TE
Air Force Intelligence Support Agency
Air Force Operational Test and Evaluation Center
Air Force Studies and Analysis Agency

5. **REQUIREMENT:** DoDI 5000.2, *Defense Acquisition Management Policies and Procedures,* Part 4, Section E and Part 11, Section C, Attachments 1 and 2, *23 Feb* 91. Part 4 provides the policies and procedures to establish the basis for developing cost and operational effectiveness analyses to support milestone decision reviews while Part 11 identifies acquisition categories (ACAT) I - 4 COEA requirements.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: Provide the operating command with information to justify and select a preferred alternative and provide an analytical basis to support the acquisition Milestone I decision review.

b. Objectives: Provide information to determine whether a new program is warranted and, if so, to identify key performance parameters. The full range of materiel alternatives must be considered. These alternatives may include the current system, a modified current system, programmed Air Force systems, other services' systems (existing or programmed), nondevelopmental items, cooperative (allied) developmental systems, and new concepts. This comparative analysis should help limit the number of alternatives considered during Phase I. The Milestone I COEA determines the operational effectiveness and life cycle costs (LCC) (including estimates of training and logistics impacts) for viable alternatives, including directed operational and support concepts from Milestone 0 decision; identifies key performance parameters for the preferred alternative(s) concept baseline; and indicates how these critical parameters impact operational and support capability, readiness, and cost. The analysis also identifies opportunities for trade-offs among performance, cost, and schedule and supports development of the operational requirements document (ORD) and the decision as to which materiel alternative(s) satisfies the ORD. Additionally, sensitivity analysis is done on all constraints, such as operational and support assumptions, to determine the best preferred alternative(s).

7. DESCRIPTION:

a. The first and foremost fact the project team must remember is that the operating command is the owner and customer. Thus, the comparative analysis should meet their objectives and comply with the framework that the acquisition decision memorandum (ADM), program management directive (PMD), OSD/PA&E, and operating command establish. The project team must also openly advise the user of options, regulatory requirements, best practices and lessons learned so the operating command can achieve their objectives. The comparative analysis includes many preceding, on-going, and iterative activities of the entire Phase 0:

1. Reviewing and approving COEA I, C17.
2. Developing a draft ORD I, C19.
3. Selecting the COEA I concepts, C21.
4. Selecting the preferred alternative, C25.
5. Updating database, D44 & 49.
6. Conducting program alternatives analysis, D46.

b. The Operating Command concept action group (CAG) or study group oversees the entire COEA effort including developing a COEA I study plan. The comparative analysis must follow the guidance in the COEA I study plan, C17. Pay particular attention to the following addressed in the COEA I study plan to ensure the analyses are conducted objectively and address Milestone 0 taskings:

1. Study Plan Acquisition Issues

a. Mission Need: The analysis must be consistent with the approved mission need statement (MNS).

b. Threat: Consistent with the defense planning guidance (DPG) and threat in the MNS, other various intelligence documents [System Threat Assessment Report for acquisition category I or System Threat Assessment for ACAT II, III, and IV], and all other documents being prepared for Milestone I decision.

c. Environment: Same as for Threat. Explicitly include potential contributions of allied forces.

d. Constraints and Assumptions: Same as for Threat. Some critical constraints could be manpower to operate and support the system concepts; specifics of the operational and maintenance concepts; funding for development, procurement, and operation and support (O&S); technology; security; special access; projected lot buys and total buys; and projected force structure. In a very real sense, there are few "hard, unchallengeable" requirements in weapons acquisition. Certain characteristics, capabilities, and levels of effectiveness are not "essential, regardless of cost." Sensitivity analysis illuminates how important it is to incorporate these features into a system.

e. Scenarios: Same as for Threat. Scenarios draw upon the need, threat estimates, operational concepts, environment, and constraints. They must be consistent across the various concepts and will comply with the DPG.

2. Study Plan Analysis Approach

a. Methodology: Use the simplest possible methodology and only accepted [Cost Analysis Improvement Group (CAIG) approved] cost models for the analysis.

b. Effectiveness Analysis (The three effectiveness measures listed below should be specified prior to doing the actual comparative analysis. This ensures objectivity. Don't select the measures to get the answer someone wants):

c. Functional Objectives: DoD 5000.2-M defines functional objectives as statements describing, in quantitative terms, the tasks a system will be expected to perform. The effectiveness of system alternatives is then measured in terms of the degree to which the functional objectives would be attained. AFMCP 173-1 defines functional objectives as goals that the system will be expected to meet. They act as the standards for comparing alternatives. (An example of a functional objective is the capability of a new weapon system to attack an XYZ target type and achieve a firepower kill.)

d. Measures of Effectiveness (MOE): MOEs are tools that assist in discriminating among a number of alternatives. They show how the alternatives compare in meeting functional objectives. They are measures at a high level versus measures of performance (MOP). MOEs should relate as directly as possible to system functional objectives and to mission accomplishment. MOEs should be defined to measure operational capabilities in terms of engagement or battle outcomes. Show how the MOEs are derived from the MNS. The MOEs and related MOPs should be included in the ORD and the key MOEs/MOPs from the ORD should also be included in the acquisition program baseline (APB) and TEMP subject to review by the requirements validation authority and approval by the milestone decision authority (MDA). MOEs can bias the analytical outcome; their selection requires rigorous attention. Generally, the more MOEs, the better the analysis. Ensure MOEs exist for each functional objective. (Continuing the above example, a MOE example is the probability of achieving a firepower kill on the XYZ target.)

e. Measures of Performance: MOPs measure system operational performance in terms of system capability. They should state exactly what system performance characteristics are to be measured, e.g., specification items as range, speed, payload, and radar cross section.

f. Life Cycle Cost (LCC) Analysis: Consider acquisition costs (including manpower), O&S costs, disposal and military construction costs for each alternative. Changing various aspects of the maintenance concept(s) may have varying effects on LCC. Use sensitivity analysis to determine the effect on LCC by changing the maintenance concept.

g. Models and Data: Use only accepted, proven models and data. Use the simplest models to do the job. If an accepted, approved model does not exist, obtaining SAF/FM (CAIG) and OSD/PA&E acceptance of the proposed methodology in the COEA I study plan is critical.

c. The analysis examines a broad range of alternative concepts to satisfy the mission need. During this phase, there will be considerable uncertainty in both the performance and cost estimates. In many cases, performance and cost are only predictable in terms of bands. Document the uncertainties and the source of all information. The COEA will help define the performance, operational, and support characteristics and capabilities most affecting mission accomplishment to establish the program design and cost objectives for Phase I. The analysis may include force-on-force analysis to evaluate alternative operational concepts. Express performance expectations and costs as intervals, (i.e., between a low and high value), using parametric estimating techniques. Cost estimates should take into account advanced research and development and engineering development as well as procurement and operation and support costs although, during phase I, the cost estimates will be very uncertain. Qualify these early cost estimates to highlight their uncertainties and any possibility for gross errors and identify, to the extent known, the characteristics of each concept that drive the cost estimates and uncertainties. Sensitivity analysis should be performed on system characteristics to better understand the military utility of each concept. The COEA I will also provide an analysis plan of cost and operational trade-offs to be examined as part of the Milestone I/IV decision.

d. The COEA I Report provided to the operating command should address specific items. These are basically the same as listed above, from the COEA I study plan. Besides those listed above, the report to the operating command, beyond those mentioned above, must address:

1. Performing the Analysis

a. Effectiveness Analysis: The aim of performance or effectiveness analysis is to measure the ability of the alternatives to accomplish the functional objectives and hence meet the mission needs. As previously discussed, MOEs are used to measure this ability. Identify the probability that the proposed system will operate when required. This probability results from concept survivability, vulnerability to countermeasures, maintainability, and reliability, as well as other factors.

b. Cost Analysis: The purpose of the cost analysis is to determine the cost ranking of alternatives. The analysis should not include any sunk costs, but these costs should be identified and noted separately. At this phase, all alternatives should be costed in constant year dollars of the selected base year. If production schedules are known, the alternatives should also be done in then year dollars. Current policy requires that Net Present Value (NPV) and constant year (base year) dollars be provided.

c. Cost/Effectiveness Analysis:

- Maintain a balance between cost and effectiveness.
- Compare equal cost or equal effectiveness alternatives, i.e., for a certain LCC what effectiveness does each alternative provide and for a certain effectiveness what is the LCC for each alternative.
- Avoid ratios

d. Trade-off Analysis: The purpose of the trade-off analysis is to identify the strengths and weaknesses of the alternatives and to identify the preferred solution. The MOPs and the cost for each alternative are used to investigate the utility of changes in each measure. This process is one of comparing alternatives as described in Cost/Effectiveness Analysis but also of doing sensitivity analysis on critical MOPs. The final task is to prioritize the alternatives. Key items should be assessed, such as cost, effectiveness, risk, military utility, supportability, and countermeasures. For Milestone I, the analysis will focus on the operational utility (effectiveness) of the proposed system. Since the system is not fully defined at this point, both performance and cost estimates are very rough. Consequently, alternatives should not be discarded at this juncture without good justification.

d. Linkage between the MNS, COEA, ORD, and Test and Evaluation Master Plan (TEMP) is vital. The MNS and ORD were discussed. The TEMP should document how the COEA MOEs and related MOPs will be addressed in the TEMP. Maintain consistency between all the acquisition management documentation. In particular, the MOEs, MOPs, and criteria in the ORD, the COEA, the TEMP and the APB, should be consistent. If the comparative analysis does not do this, the project team is not serving the customer well. If test limitations exist, the analysis should explain in a quantitative evaluation how and to what extent COEA results would be expected to vary as a result of test limitations.

e. The comparative analysis is basically the essence of the COEA I report, so present the analysis information in such a way that the operating command can use the comparative analysis in the report. The COEA report summarizes the essential elements of the analysis and presents the results in terms of relative cost and utility. To the extent possible, identify the cost drivers and high risk areas for each option. The system alternatives in the COEA and those in the independent cost analysis, if required, will be the same.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance Criteria: This activity literally starts Pre-Milestone 0 while the AFMC center is assisting the operating command with their mission needs analysis since the data, information, and knowledge generated are carried forward and updated during the Phase 0 studies and analysis. A center will officially start doing comparative analysis for the COEA once the Operating Command "contracts" with a center for the COEA analysis. Should a center be the supplier of choice, the center should be a member of the Operating Command CAG, C16.

b. Exit Criteria: This activity is an iterative process between the Operating Command and the Center. Various trade studies and questions will be asked throughout the Phase 0 analysis activities. Further comparisons could be required throughout Phase 0 and even Phase I. Consequently, one cannot assume completion until a Milestone I/IV decision is made (A22).

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) The COEA I Plan including assumptions, methodology, etc. (C17).
(2) The most current project data collected to date (D44).
(3) Complete and current information on the development of the ORD I (C19).
(4) Operating commands selection of COEA I concepts (C21).
(5) Complete and current information on the analysis of program alternatives (D46).

b. Outputs:

(1) Provide all the information required for user to select the preferred alternative(s) (C25), conduct a program alternatives review, and complete a COEA I Report (C23).
(2) Considerable data is collected during this activity and must be retained in the project database (D49).

10. KEY REFERENCES:

a. DoDI 5000.2, *Defense Acquisition Management Policies and Procedures,23 Feb* 91, Part 4. (See **REQUIREMENT**)

b. DoDM 5000.2-M, *Defense Acquisition Management Documentation and Reports*, Feb 91, Part 8. Provides information on how to conduct a COEA and also provides the format for the COEA report.

c. AFPD 10-6, *Mission Needs and Operational Requirements*, 19 Jan 93. Shows the relationship between the COEA and ORD and ACAT and COEA approval levels.

d. AFI 10-601, *Mission Needs and Operational Requirement Guidance and Procedures*, 16 Feb 93. Shows relationship between Milestone 0 decision and COEA and the COEA procedures and format.

e. AFMCP 173-1, *AFMC Cost & Operational Effectiveness Analysis (COEA) Guide*, 30 Dec 92. Provides guidance and procedures for developing and processing Air Force COEAs, when COEAs are required, how they are used, key elements, organizational structure, and agency responsibilities.

11. IMPLEMENTATION TOOLS: See the list of models in AFMCP 173-1, Appendices 3 and 4.

12. PLANNING GUIDANCE:

a. DURATION: Goal is 180 days from PMD issuance until draft COEA I report is distributed by the Operating Command. This time frame depends on pending Milestone I review, summits, etc. If conditions and time permit, a longer suspense will be allowed (AFI 10-601, Attachment 9). Based upon experience, 180 days is unrealistic. Planning, coordination, and approval of a COEA plan for a major program can easily consume 180 days with much more time required to execute the COEA and then write, coordinate, and brief the results. Contracted COEAs have taken up to 2 years. The typical COEA is takes 1 year.

b. CONSTRAINTS:

See **DURATION**. A COEA report is distributed and all recipients (AFI 10-601, Attachment 10) have 45 days for review. ACAT I COEA reports must be approved by the AF Acquisition Executive at least 60 days prior to the Milestone 1 review or summit. Operating Command Commanders approve less than ACAT I COEA reports, and they must also be approved at least 60 days prior to the Milestone 1 review or summit. One possible conflict in the approval process is that AFI 10-601 states that, generally, a summit should be scheduled at least 180 days before the next scheduled Joint Requirements Oversight Council or DAB review. The lack of formal procedures for accomplishing joint COEAs is a constraint. As the DoD moves toward more joint programs, the services must develop these procedures. HQ USAF/XOME is currently working (mid 93) procedures. The Joint Direct Attack Missile, Joint Stand-off Weapon, and Joint Primary Aircraft Training System (JPATS) programs are a forcing function for this activity. However, there will be significant challenges to developing these procedures:

- Both the Army and Navy truly have independent COEAs in that the user is not responsible for conducting the COEA as in the AF.

- The AF uses a CAG, consisting of action officers, for COEA oversight. The Navy has an oversight board of higher ranking officers. For ACAT I programs, the Navy's oversight board consists of flag officers. A typical board would consist of:

  - Assistant Secretary of the Navy (RD&A) staff
  - Deputy Chief of Naval Operations (N8) (flag representative)
  - Program sponsor
  - Director of Test and Evaluation
  - Director of Naval Intelligence
  - Supporting systems command representative
  - Program manager representative

Oversight boards for lower level ACAT programs consist of O-6s and O-5s. At one point, when the Navy was going to be the lead service for JPATS, the AF was going to have HQ USAF/XO (a three star) sit on the oversight board.

c. RESOURCES: Contracted COEAs have cost up to several million dollars while the typical COEA costs about $1 million.

d. LESSONS LEARNED:

- A frequent weakness is inadequate attention to potential modifications of existing systems.
- If contractor support is needed, identify funds early - preferably Pre-Milestone 0. Also, identify a contracting vehicle.
- At this time, there are no formal procedures for conducting and coordinating a joint COEA.

- Military personnel at the operating commands are reassigned roughly every 3 years, so be sure to continually communicate with the user. The project team is their "corporate memory."

- Bringing an operating command representative "up to speed" may be a significant workload.

- Ensure COEA is consistent with the project office estimate and component cost estimate (previously known as the independent cost analysis).

e. BEST PRACTICES:

- Keep the document as brief and concise as possible to depict relevant information without adding levels of detail exceeding those required. Put details in an appendix or reference a file location.

- Allow for new or modified alternatives to be added as the analysis proceeds and new options are identified or old options refined. Remember, this is an iterative process.

- Get the intelligence community involved early.

- Coordinate the models used with the AF CAIG and OSD(PA&E) early in the process.

- Define the methodology and analysis steps in enough detail so that any other organization can replicate the analysis.

- Under current HQ AFMC guidance, the operating command may select a center as their COEA supplier of choice.

f. TRAPS:

- Attempting to examine too broad of a range of alternatives. The range must be manageable and must cover the minimum range of alternatives directed by the ADM and PMD.

- Do not include alternatives that are obviously unsuitable; however, one or two sentences will be required in the analysis report explaining why an alternative was judged unsuitable. If there is a question as to the suitability of an alternative, include it. On the other hand, if rough order of magnitude estimates of cost or performance indicate an alternative is clearly unsuitable, the estimates need not be refined.

- Making assumptions that are not consistent with the MNS, ADM, PMD, and other project documentation being developed.

- Using ratios in the effectivity analyses.

- HQ USAF/XOR currently does not accept as policy the guidance provided in the Under Secretary of Defense for Acquisition Memorandum, Implementation Guidelines for Relating COEA MOEs to Test and Evaluation, 9 Mar 92.

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1. **ELEMENT**: D49, TBS 1.2.3.5 (IFC 93-3)

2. **ELEMENT TITLE:** Update Database

3. **ELEMENT OWNERS:** Operating Command, Implementing Command, Product Center Development Planning Directorate (XR) and Program Development SPO (ASC/YX), Industry

4. **ELEMENT STAKEHOLDERS**:

a. Implementing Agencies: Department of Defense (DOD), Secretary of the Air Force (SAF), Implementing Command, Product Center XR and YX (ASC).

b. Supporting Agencies: Air Force Intelligence Support Agency (AFISA), Air Force Studies and Analysis Agency (AFSAA), Laboratories, Industry, Operating Commands.

5. **REQUIREMENT:**

a. Air Force Policy Directive (AFPD) 10-6, Mission Needs and Operational Requirements, 19 January 1993: This directive requires the implementation of the DOD 5000 series documents, which in turn requires the maintenance of database.

b. AFPD 37-1, Information Management: (On order, upon receiving document, the definition will be constructed).

c. AFPD 63-1, Acquisition System: (On order).

d. AFR 55-43, Management Operations, Test and Evaluation, 29 Jun 90: This regulation describes the support document requirements and the Data Management and Analysis Plan.

e. Department Of Defense Directive (DODD) 5000.1, Defense Acquisition, 23 Feb 91: Establishes a disciplined management approach for acquiring systems and materiel that satisfy the operational user's needs.

f. DODD 8320.1, Data Administration, 26 Sep 90: (On order)

g. MIL-STD-1388-1A, Logistics Support Analysis (LSA), 11 Apr 83: The goal of this standard is a single, uniform approach by the Military Services for conducting activities necessary to cause supportability requirements to be an integral part of system requirements and design, with documentation developed and maintained.

h. MIL-STD-499B, Systems Engineering, Draft: The decision database may be digital, defined by the Government or left open for contractor definition.

i. MIL-STD-1388-2B, DOD Requirements for a Logistics Support Analysis Record, 28 Mar 91: This standard is directed toward improving the cost effectiveness of the generation, maintenance, acquisition, and use of the technical data required to support an LSA program.

j. MIL-STD-1840A, Automated Interchange of Technical Information, 22 Dec 87: The purpose of this standard is to standardize the digital interface between organizations or systems exchanging digital forms of technical information necessary for the logistic support of weapon systems throughout their life cycle.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose of the program database is to provide a central location for the collection and storage of information / data. This information / data will support the Project Team in making decisions that respond to external and internal requirements, (i.e. the information needs of milestone decision authority).

b. Objective: At this point the database is updated using Phase 0 project activities planned since the update of Project Database, D44.

7. DESCRIPTION:

a. The database is the updated information used and generated for integrated requirements and flowdowns; interface constraints and configuration alternatives; verifications; decision criteria; trade study assessments; and any other required documents. It includes physical and mathematical models, computer simulations, layouts, and similar configuration documentation and technical data, as appropriate. The performing activity selects the specific data entry media, storage, and maintenance procedures. At this stage the database captures the examination of the preferred alternatives, including COEA Comparative analysis (D48), Program Alternative Analysis (D46), and other data from the Alternative Systems Review (D45).

b. The preliminary user of this stage of data depository is the preferred alternatives definition process. It i uses the program cost estimating processes. It ultimately feeds into the Integrated Program Strategy process Plan and Organize for Program, Big Block 1.3). At this point the database will contain sufficient approved data to generate the Request for Proposal D64) and to develop Draft Cost Analysis Requirement Description (D52). The update Program Cost Estimate (D47) is using already existing specifications together with parametrics, quantities and schedules from the database. for the Preferred Concept Alternative. D37B).

8. **ENTRANCE/EXIT CRITERIA:**

a. Entrance: This is a continuous activity, intended to be current since established in D15, and updated in D-31, and D-44.

b. Exit: The Data Base will continually be updated throughout the pre-milestone 1 process and beyond.

9. **KEY INPUTS AND OUTPUT:**

a. Input:

From COEA Comparative Analysis (D48):

(1) COEA I Report
(2) Life Cycle Cost Estimate
(3) Alternative Systems Performance/Supportability Analysis
(4) Theater/Campaign Analysis
(5) One-on-One Operational Analysis
(6) Mission Analysis
(7) Comparison of Alternatives From Program Alternatives Analysis (D46)
    (a) Program Alternative Analysis Report
    (b) Program Risks for Alternatives
    (c) User inputs to program development impacts
    (d) Other approved pertinent data since D44

b. Output:

(1) All above inputs serve as unaltered outputs as needed.
(2) Data to Updated Program Cost Estimate(D47).
Life Cycle Costs and other cost estimating factors and relationships
Program Schedules.
Quantities
(3) Combination of data to conduct Concept Definition for Preferred Alternatives (D37B).

10. KEY REFERENCES: (In addition to those listed in Requirements, Paragraph 5)

a. Air Force Instruction (AFI) 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93: Identifies official Air Force information required for decision making and historical purpose and develop a schedule of the information life cycle to describe creation, maintenance, and disposition (AFI 37-123, Management of Records).

b. AFI 10-602, Logistics Support and Readiness Requirements: (On order, upon receiving document, the definition will be written.)

c. AFI 14-303, Threat Support, Acquisition Process: (On order).

d. AFI 16-501, Control and Documentation, Air Force Programs: (On order).

e. AFI 33-105, Information System, Standard Programs: (On order).

f. AFI 37-1, Information Management: (On order).

g. AFI 37-123, Management of Records: Identifies the activities to plan, design, model, synchronize, standardize and control Air Force Corporate data at all echelons

.

h. AFI 37-150, Data Administration and Standards Program: (On order).

i. DOD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91: Establishes an integrated framework for translating broadly stated mission needs into stable, affordable acquisition programs that meet the operational user's needs and can be sustained, given projected resource constraints.

j. DOD Manual 5000.2M, Defense Acquisition Management Documentation and Reports, 23 Feb 91: This Manual implements relevant portions of DODD 5000.1 and DODD 5000.2. Specific responsibilities pertaining to major areas are provided in each individual section, as appropriate.

k. Implementing Command: Submit required acquisition program documents. (Defense Planning Guide, Mission Area Assessment, and Mission Needs Analysis, etc.).

l. MIL-HDBK-59A, DOD Computer-Aided Acquisition and Logistic Support (CALS) Program Implementation Guide: The purpose of this military handbook is to provide general information and detailed application guidance for contractually implementing CALS requirements in weapon system and related major equipment procurements.

m. MIL-HDBK-X499-3, Systems Engineering/Configuration Management, Draft: The decision database will provide an audit trail from initially stated needs and requirements to the current description of system products and processes.

n. Secretary of the Air Force (SAF/AAI): SAF/AAI will ensure compliance with DOD Corporate Information Management (CIM) to allow sharing of data with appropriate DOD agencies and other Government agencies.

o. Supporting Command: The Supporting Command will collect and process Integrated Logistic Support (ILS) information in the Logistics Management Information System (LMIS). Outline the actions. support, and documentation needed to establish maintenance requirements for on and off equipment throughout the life of the system. Identify data collection and analysis efforts that will continue after fielding of system equipment.

p. Using /Operating Command: The user will ensure data and management needs are identified. Integrate the Logistics Support Analysis process with the System Requirements Analysis activity. Outline the actions, support, and documentation needed to establish maintenance requirements for on and off equipment throughout the life of the system.

11. IMPLEMENTATION TOOLS:

a. Automated Data Processing (ADP) is available as Government Furnished Property (GFP).

Contact:

Director USAMC Logistic Support Activity
ATTN.: AMXLC-AL
Lexington, KY 40511-5101
606-293-4193 (Mr. David Henderson)

b. Computer-Aided Acquisition and Logistic Support (CALS): The repository of information used and generated at the appropriate level for the acquisition phase of integrated requirements and flowdowns; interface constraints and requirements; functional and performance requirements; system concept; preliminary design and configuration alternatives; details design; verifications; decision criteria; trade study assessments; system, subsystem, and functional capability assessments; and other required documentation.

(a) MIL-HDBK-59A
(b) MIL-STD-1840A

c. Systems and Logistics Integration Capability (SLIC): This is a state-of-the-art, DOD Type III validated, microcomputer based LSAR system that can be used to completely satisfy all MIL-STD-1388-2A requirements with total independence from any other hardware and software.

(a) SLIC I
(b) SLIC II

12. PLANNING GUIDANCE:

a. DURATION: Update the database continuously, throughout the life of the product.

b. CONSTRAINTS:

(1) Identify computer resource constraints (examples include language, computer, data base, architecture, or interoperability constraints).

(2) Database capacity (identify spare memory and throughput requirements, computer memory growth requirements, software partitioning and modular design requirements such as software module size (e.g., no greater than 100 lines of code).

(3) Access capabilities
(4) Security restrictions
(5) Time
(6) Assumptions
(7) Funds
(8) Management Resources
(9) Training

c. RESOURCES:

(1) Facilities
  (a) Classified work space
  (b) Personnel office space and supplies
  (c) Database location
(2) Computer hardware and software programs
  (a) Analytical models
  (b) Program Management Software
(3) Security
  (a) Type of access required
  (b) Provide access for contractors
(4) Manpower
  (a) Security personnel
  (b) Computer systems personnel
  (c) Data management personnel

d. LESSONS LEARNED: (First two lessons transcribed from ALLCATS, the others are referenced).

(1) # 1982, Program Directors: Enhanced quality and quantity of information on the AFAM database. Improvements include additional lessons learned and best practices, updated references, increased number of tools such as software programs, document templates, samples, and courses. (Col. Ferrell, ASC/CYM, DSN 785-2213)

(2) #1344, Schedule Plan For A Source Selection: Develop a detailed plan for the execution of source selection that will aid the flow of data and provide expedient changes to contingencies. All data were computerized on an IBM program called "Super Project." The data was placed in a network to define the internal relationships of activities and resources and a Gantt chart was used to provide schedule suspense dates and serve as a tracking tool. By computerizing the data base "what-if" scenario's could be evaluated based on unknown contingencies (i.e., slip of data reviews, modifications to the proposals, personnel conflicts or absences.) The database was used as a "living tool" to help manage 200 evaluators, 18 evaluation items, and 7 proposals. (POC will be added at later date.)

(3) # 1264, AFLC LMS Target Operating Environment
(4) #1418, Internal Financial Management.

(5) #1888, Program Managers:
(6) # 1982, Program Directors
(7) # 9020, Hardness Surveillance Test Systems (PHSTS)
(8) # 9063, Air Force Electronic Combat Office (AFECO)
(9) # 9115, ASIAC
(10) #9116, Reliability Analysis Center (RAC)

e. BEST PRACTICES:

Use MIL-HDBK-59A, DOD CALS Program Implementation Guide, and MIL-STD-1840A, Automated Interchange of Technical Information to control data storage with frequent backups to avoid the loss of data.

f. TRAPS:

Noncompatible CALS systems have problems with non-standard terminology used to file or retrieve data.

1. ELEMENT: D50, TBS 1.3.1.1 (IFC 93-3)

2. ELEMENT TITLE: Develop Preliminary Systems Threat Assessment (Report) (STA(R))

3. ELEMENT OWNER(S): DIA/DT-AS, AFISA/INK Project Office

4. ELEMENT STAKEHOLDER(S): Product Center Director of Intelligence (DI) (For ASC it is ASC/FASTC/TAIA), AFISA/INAA, DIA/DT-AS, AFISA/INK Project office, AFMC/IN

5. REQUIREMENT

a. DoD 5000.2-M, Feb 91, Part 5. Policies and procedures for developing a STA(R).

b. DoDI 5000.2, 23 Feb 91, Part 4, Section A, pg. 4-A-1. Defines intelligence support required for acquisition programs.

c. Air Force Policy Directive 10-6. Defines requirement for STA(R).

6. PURPOSE/OBJECTIVES:

a. Purpose: Mission needs and the defense acquisition programs that may result shall be based on current, authoritative threat information. A System Threat Analysis Report (STAR) will be prepared and be current and validated prior to each milestone decision review beginning with MS I.

STARs are required for ACAT 1C and 1D programs, and for major modifications, as defined by AF Policy Directive 10-6. It will be the primary threat reference for the Operational Requirements Document (ORD), the Cost and Operational Effectiveness Assessment (COEA), the Integrated Program Summary (IPS), and the Test and Evaluation Master Plan (TEMP).

If the program is not ACAT I, (i.e. ACAT II-IV), the threat report is called a System Threat Assessment (STA) and is accomplished by the Component Command Intelligence Agency - AF/IN for Air Force projects/programs. The procedures for a STA are essentially the same as for a STAR.

b. Objective: The objective of this block is to get a threat document produced that will compliment the acquisition process. Provide decision makers an analysis of the threat environment that the system will encounter.

7. DESCRIPTION:

a. The STA(R) is required prior to going to a review for the program. It must be initiated with sufficient time to write a complete and factual document. The STA(R) should be written for the preferred concept. Thus, it fits into the flow of the process prior to the roundtable discussion and about the same time as the preferred concept is being determined. The STAR is the basic authoritative threat assessment tailored for, and focused on a particular US defense acquisition program. The Director of Intelligence (DI) is responsible for writing and updating the STAR. Included in the STAR is an assessment of those projected capabilities, doctrine, strategy, tactics, organization, equipment, and military forces that a potential enemy could use to defeat or degrade the US system during its employment. The STAR focuses on two specific points in time, initial operational capability (IOC) of the US system and IOC plus ten years (IAW DoDM 5000.2M, Part 5, pg. 5-1-2).

b. A STAR contains:

1. a preface
2. an executive summary with a threat matrix

3. a description of the system and operational concept (including a reference to the Program Protection Plan)
4. the operational threat environment
5. targets
6. system specific threats
7. the reactive/technologically feasible threat
8. appendices:

a. the critical intelligence parameters (CIPs)
b. CIP threat status and associated intelligence production requirements (IPRs)
c. list of references
d. distribution list.

c. When the DI, in coordination with the System Program Director (SPD), the Air Force Intelligence Support Agency (AFISA), the Defense Intelligence Agency (DIA), HQ AFMC, and the using command determine the STAR is required or needs to be updated, the DI organization will begin the process.

d. The initial STA(R) is initiated as follows: A Threat Steering Group (TSG) chaired by HQ AFISA, is convened to assist in drafting the document. The Acquisition Command (AFMC) initiates, prepares, and coordinates the draft STA(R) document, obtains HQ USAF/IN approval and produces the STAR in accordance with a schedule determined by the TSG, (usually within 180 days of the Program Management Directive). DIA then validates the STAR for ACAT I programs and AFISA validates the STA for other programs.

e. The group reviews the system description and the concept of operations for significant changes since the last STAR was published. Based on the US system description, changes in the threat are discussed. The group produces a threat matrix containing a general description of the threat (i.e., surface-to-air missiles) and an estimate of the likelihood of occurrence. Threat Environment Descriptions (TED) are used as the baseline documentation for development of the STAR.

f. The threat matrix is the outline for the STAR and is contained in the executive summary of the STAR to provide a quick overview of the threat to senior decision-makers. Once the first draft of the STAR is produced, it is distributed to all members of the TSG for review.

g. The ASC Director of Intelligence, ASC/FASTC/TAIA, (DSN 785-4285) writes the STAR at ASC. In this case the STAR is developed to support a MS I review. The STAR is developed to support the preferred concept(s) selected by the MAJCOM following the development of the Cost and Operational Effectiveness Assessment (COEA) for Phase 0. Only one STAR is developed for each potential program and it should be based on the preferred concept(s) to be presented at the milestone review.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Several documents are required before work on the STAR begins. A Mission Need Statement is required C13 and A6) from the Operating Command or JROC (Joint Requirements Oversight Council). A Concept of Operations (see C19) is required from the Operating Command. And finally, a Systems Requirements Description is required from the SPO (D37B). Any other systems documents that would give a better understanding of the system, its technologies, and its operations, would be helpful to the Intelligence Analysts and allow them to write a better STAR.

b. Exit: A STA(R) in the proper format is the exit from this block. It is required to be validated and given to the acquisition decision makers for their review.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The major input is from block D37B Conduct Concept Definition for Preferred Alternatives. This gives the intelligence community the proper focus. The STAR should be written for the preferred concept(s) to eliminate any unnecessary documentation.

b. Outputs: Output is to blocks D51 - Develop Preliminary Acquisition Program Baseline; D54 - Develop Preliminary Test and Evaluation Master Plan (TEMP); and D57 - Conduct Strategic Roundtable.

10. KEY REFERENCES: AFSCR 200-3, Threat Assessment Documentation, Atch 1, 5 Apr 85. Describes how to write a threat document.

11. IMPLEMENTATION TOOLS: The STAR will use the TEDs developed to support the overall MNS to derive their baseline data. All other relative intelligence sources will be used.

12. PLANNING GUIDANCE:

Points Of Contact:

Organization	Commercial	DSN
HQ AFMC/IN	513-257-2869	787-2869
DIA/OTD-AS	203-373-4740	243-4740
AFISA/INAA	703-695-7578	225-7578
ESC/IN	617-377-2377	478-2377
ASC/FASTC/TAIA	513-255-4285	785-4285

a. DURATION: A STA(R) takes time to develop. Normal estimates of development time are from one to six months or more. A potential major program focusing 10-15 years in the future may take 6 months or more while a smaller effort may take a few months.

b. CONSTRAINTS: Data may be limited based on the intelligence database pertaining to the specific threat and system under consideration.

c. RESOURCES: Normally one person is put in charge of developing the STA(R) and will require numerous (2 to 10) additional personnel to assist in the data collection and report writing. At least one person from the project office should be put in charge of monitoring the development of the STAR.

d. LESSONS LEARNED: What can the program office do with the STAR? The STAR is to be submitted to the reviewing authority to determine the relationship between the mission need and the threat. The program should model and analyze its requirements against the threat. Inputs from the STAR can be used in the Requirements Correlation Matrix and the Test and Evaluation Master Plan. The STAR can also be used to justify program changes, slips, etc.

e. BEST PRACTICES:

1. Early in the program it is advisable to establish a working group to develop the information required. There is no formal requirement to have a Threat Working Group (TWG), or any other group, to write a System Threat Assessment. Common sense and best practices dictate the need for a group that will dedicate effort to the production of a STAR. A TWG, a Threat Steering Group (TSG), or some other working group is in order.

2. If a TWG is desired a few thoughts for that activity follow. The TWG acts as a forum for threat assessment and evaluation of threat environments and threat related subjects. The TWG drafts the threat documentation required for the appropriate phase of the program.

3. The Acquisition Command can form and chair a TWG for each HQ USAF-directed acquisition program. For smaller programs, only one TWG may be needed; for large scale programs (i.e., new aircraft), many TWGs may be operating concurrently. The TWG is comprised of the working level representatives of all agencies (NAIC, DIA, CIA, AFIA, contractors, etc.) participating in the specific threat assessment. TWG members are responsible for constructing detailed threat support documentation, preparing support material for technical and project reviews, and reducing and analyzing intelligence data. TWGs convene when required. The Project Manager (PM) must ensure appropriate planning and programming has been done to enable all required agencies to participate in specific TWGs for the duration of the specific project effort.

4. The TWG must be formed in time to allow for early and thorough threat planning and coordinating with proper agencies. It functions as long as threat documentation is being prepared for the project office, and should be reconvened when necessary to update the threat documentation as required for milestone reviews or when there is a significant breach in the project baseline or change in the threat environment.

5. The TWG team should include representatives from all intelligence agencies external to the project office that may be involved during the life of the project. Based on the threat environment and documentation requirement, the project manager may establish and formalize (perhaps through Memoranda of Agreement or contract) relationships with all agencies required to participate in threat documentation over the expected life cycle of the system. Ideally, a single focal point from each participating agency will be identified for inclusion on the threat working group. Memoranda of Agreement and contracts will specify exactly what is expected from each agency in planning r and conducting threat assessment work. The project manager may need to consider budgeting for support for some agencies which, while crucial to the program, have severely limited budgets. When these agencies and representatives have been identified they should all become part of the TWG.

6. The TWG must accomplish the following to get the project going on the right foot:

a. Analyze threat information / intelligence data.
b. Validate threat environment.
c. Develop threat assessment.
d. Develop the threat documentation.

7. The process of threat analysis and documentation is lengthy. It should be started as soon as possible after the basic program is defined or at least as soon as a framework for the program is developed. Time frame for completion is on the order of months.

8. Prior to establishing the TWG, the project office must be organized and manned. The TWG should be formed at the same time the Mission Area Assessment and Mission Needs Assessment is being done. This will help in the development of the Mission Needs Statement.

9. Thefor, programming fo TWG can be an overwhelming activity. There are usually numerous people interested in the activities of the TWG. If you are not careful, the TWG will get too big and not function as a planning group but as a review group. Make efforts to control the number of people on the group.

10. The time required for a TWG varies with the complexity of the project. It could be as little as a day to as much as several months. The TWG typically meets once a quarter, or as required as you approach a milestone review. The TWG will require a meeting facility appropriate to the security level of the project. Further, the size of the TWG will dictate the facility requirements for the meeting.

f. **TRAPS:** It is the project office's responsibility to ensure the STA(R) is initiated. Just because a PMD is issued following a MS 0 review, do not assume that the intelligence community knows about it and initiates the report. The intelligence community will try to anticipate your needs but do not count on it.

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1. **ELEMENT:** D51, TBS 1.3.1.2 (IFC 93-3)

2. **ELEMENT TITLE:** Develop Preliminary APB

3. **ELEMENT OWNER(S):** SAF/AQXA

4. **ELEMENT STAKEHOLDER(S):** Project Teams, ASC SPOs, PEO, DAC, Operating Command

5. **REQUIREMENT:** DoDI 5000.2, 23 Feb 91, Part 11, Section A, Program Objectives and Baselines. Establishes the policy and procedures for the preparation, submittal, approval, and reporting of APBs.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of the Acquisition Program Baseline (APB) is to enhance project stability, provide a critical reference point for measuring and reporting the status of project implementation, and provide early warning and management visibility.

b. Objectives: The APB defines the project in terms of key parameters which ideally represent the most cost effective and timely approach for fielding a new system that satisfies the mission need. The APB formally documents the project into an agreement among all interested participants, including user, project manager, logistician, tester, trainer, and service headquarters.

7. **DESCRIPTION:**

a. The APB describes the cost, schedule, and performance objectives for the project and is prepared by the Project Team. It is essential to have Operating Command participation in each acquisition phase to ensure consistent performance objectives in the Operational Requirements Document (ORD) and the APB, and to keep the objectives operationally meaningful. These objectives include a set of minimum acceptable requirements, which are identified in the ORD (C19), and are incorporated in the APB, the Test and Evaluation Master Plan (TEMP) (D54), and the Cost and Operational Effectiveness Analysis (COEA) (D37B) as thresholds. The APB for Phase I, Demonstration and Validation, establishes the Concept Baseline and is approved by the Milestone Decision Authority (MDA). See DoD 5000.2-M, Part 14, for detailed instructions on preparation of APBs.

b. The Concept Baseline (APB for MS I) contains broad objectives and thresholds for key cost, schedule, and performance parameters. Supportability is included in the performance parameters. Key parameters are those that, if the thresholds are not met, the MDA would require a re-evaluation of alternative concepts or design approaches. The thresholds establish deviation limits, i.e. the parameters beyond which the Project Team may not trade off cost, schedule, or performance without authorization from the MDA.

(1) The thresholds for the key performance parameters identified in the Concept Baseline will be the minimum acceptable operational requirements identified in the ORD for those parameters.

(a) If a required operational capability date is identified in the ORD, it will be included in the Concept Baseline as a schedule threshold.

(b) Cost thresholds will be established by the MDA based on affordability assessments.

(2) Project objectives evolve from broad, general objectives at Milestone I to system-specific, detailed requirements at Milestone III. Objectives should be established based on the results of concept definition studies, cost and operational effectiveness analyses, and affordability assessments (D37B).

(a) Objectives should be reasonable and realistic and, in the case of performance parameters, should reflect an operationally meaningful, measurable, cost effective, and affordable increment in capability beyond the thresholds.

(b) Performance objectives in the Concept Baseline should be the starting point for developing initial draft system specifications during Phase I, Demonstration, and Validation.

(c) Project objectives are established based on the results of the preceding phase(s).

(3) The APB will be submitted by the designated component official through the MDA chain as a stand-alone part of the Milestone I documentation package. The APB will be approved or modified by the MDA as a result of a favorable Milestone I decision.

(a) For Acquisition Category (ACAT) IC projects, the Air Force Acquisition Executive (AFAE) will approve the baseline and forward an information copy of the baseline to the Under Secretary of Defense for Acquisition (Attn: Defense Acquisition Board (DAB) Executive Secretary) within 10 days of approval.

(b) For ACAT ID projects, the AFAE will submit the baseline to the Under Secretary of Defense for Acquisition for approval.

(c) For ACAT I projects coming before the DAB, performance objectives and thresholds must be submitted to the Joint Requirements Oversight Council (JROC) for review and confirmation that the resulting capabilities satisfy the mission need prior to each Milestone review.

(d) For ACAT II through IV projects, the baseline will be approved by the MDA.

c. APBs and deviation reporting are required for all acquisition categories. The formality of the baseline and the deviation reporting varies by acquisition category.

(1) ACAT I projects have formal baselines and deviation reporting in accordance with the formats and reporting procedures specified in DoD 5000.2-M.

(2) APB format, deviation criteria, and deviation reporting for ACAT II, III, and IV projects is specified by the MDA. The APBs are tailored to the priority, value, and risk inherent in the project. ACAT II through IV projects will generally have tailored APBs with lesser detail than ACAT I projects.

(3) The Project Team maintains a current estimate of the project actually being executed. The current estimate shows the trade-off between cost, schedule, and performance made by the Project Team as well as changes made in the project external to the Project Team (e.g., by Congressional action).

(4) Project breaches occur when the current estimate of the project falls outside one or more APB thresholds.

(5) The method of advising the MDA of project breaches is through project deviation reporting. See DoD 5000.2-M, Part 19, for instructions on preparation of project deviation reports. At ASC, the Corporate Management Network (CMN) triggers breach notices for different levels of management.

d. The vehicles for reporting on current approved APBs are the Selected Acquisition Report (reference DoD 5000.2-M, Part 17) and the Defense Acquisition Executive Summary report (reference DoD 5000.2-M, Part 16).

e. Once signed by the MDA, APBs will only be changed at subsequent milestone or project reviews or, with the approval of the MDA, as a response to an unrecoverable baseline deviation (breach).

f. The DoD Components may supplement the APB with an assessment structure explicitly tailored to measure the Project Team's performance relative to the directed project.

(1) The content, format, and reporting frequency of this assessment structure will be determined by the Component.

(2) This assessment structure will not be the basis for Defense Acquisition Executive Summary, Selected Acquisition Report, or project deviation reporting.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The APB will be submitted by the Project Team through the decision chain to the MDA as a stand-alone part of the milestone documentation package.

b. Exit: The APB will be approved with the Acquisition Decision Memorandum (ADM) following a milestone or project review by the MDA.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: Draft ORD (C19)
Affordability Assessments (D37B)
COEA Comparative Analysis (D37B)
Concept Definition Studies (D37B)

b. Outputs: Final APB

10. KEY REFERENCES:

a. DoDI 5000.2, 23 Feb 91, Part 4, Section B, Evolutionary Requirements Definition, Paragraphs 2.b and 2.c and subs, Pages 4-B-1 and 4-B-2. Describes system performance objectives and minimum acceptable requirements for operational performance to be included in the ORD and APB.

b. DoDI 5000.2-M, Feb 91, Part 14, Acquisition Program Baselines, contains instructions for preparation of Acquisition Program Baselines.

c. DoDI 5000.2-M, Feb 91, Part 19, Program Deviation Report, contains instructions for preparation of Program Deviation Reports.

d. Air Force Acquisition Model (AFAM).

e. SAF/AQ Policy Letter 92M-012, 26 May 92, Acquisition Program Baseline (APB) Policy Memo 91M-006 - INFORMATION MEMORANDUM. Directs that future APBs will be accomplished in accordance with DoDI 5000.2 and DoD 5000.2M and that expanded guidance will be provided in AF supplements to 5000.2 and 2M.

11. IMPLEMENTATION TOOLS: Corporate Management Network (CMN), AFAM.

12. PLANNING GUIDANCE:

a. DURATION: This task has historically taken anywhere from several weeks to a couple of years. The difference in the time is due to the complexity of the project, whether it is the initial APB or

just an update of an already approved APB, and the number of internal and external organizations required for coordination. There is a push now to turn the APBs around in a more timely fashion; however, it has yet to be accomplished.

b. CONSTRAINTS:

(1) Restrictions regarding the time in which the document must be completed.

(2) Restrictions on the availability of needed project staff.

(3) Identification of other organizations/individuals with which you must interface.

(4) Restrictions regarding the proper format in which the document must be produced.

c. RESOURCES: This task requires at least one individual on the project team to gather inputs, compile the inputs into an APB format, and get the required coordination from all participating offices. It also requires use of a computer with a good word processing program and a reliable printer.

d. LESSONS LEARNED:

(1) Requirements must be clearly defined/baselined and agreements reached within the operating command prior to release of a Request for Proposal (RFP). In addition, a project cost baseline must be established against which progress can be measured. Most project slips, cost increases, and technical problems result from poorly defined requirements. (Reference AF Lessons Learned #1273).

(2) Do not prepare the APB and file it away with the other project documents; it needs to be incorporated into contractor performance measurement criteria. Failure to systematically track performance against the APB will result in a huge workload to assess the reasons for the potential/actual breach. This will not allow management actions to be taken to identify and solve problems early.

e. BEST PRACTICES:

(1) The baseline document is a summary of key parameters only and does not provide detailed project requirements or content. The intent of the baseline is to capture the key parameters that define the system. Thus, the number of key parameters should be small (maybe 5-10 performance items). The objective is to enhance project stability and control cost growth.

(2) Budget must match risk level and must cover ALL cost elements, not just the contractor effort.

(3) A good APB becomes the management tool for the project. It is not a report; it is the "bible" of the project.

(4) A draft APB should be provided to the operating command, the Program Element Monitor (PEM), and any other office required for coordination of the APB for review and comment before going final. This would ensure all participants are in agreement with the information contained in the APB. Should consider including industry review of the draft APB.

(5) The APB should definitely be included in the Request for Proposal (RFP) library.

f. TRAPS: See Lessons Learned.

1. ELEMENT: D52, TBS 1.2.4.5.1 (IFC 93-3)

2. ELEMENT TITLE: Develop Draft Cost Analysis Requirements Description (CARD)

3. ELEMENT OWNER(S): OSD/PA&E

4. ELEMENT STAKEHOLDER(S): OSD CAIG, AF CAIG, AFCAA, Product Center Staff, Project Office. Anyone involved in preparing or reviewing a cost estimate.

5. REQUIREMENT: DODI 5000.2, Defense Acquisition Management Policies and Procedures, Change 1, 26 Feb 93. Part 11, Section C, Attachment 1 indicates CARD is required no later than Milestone Planning Meeting.

DOD 5000.4-M, Acquisition Policy 93M-012, 28 Jun 93, Provides information on developing the CARD.

6. PURPOSE/OBJECTIVES:

a. Purpose: Develop a technical and programmatic description of selected alternative(s) that can be used by the cost analysts to support estimating the cost of the alternative(s).

b. Objectives:

(1) Provide the program office cost estimating and the component cost analysis teams with a common basis for their project cost estimates.

(2) Describe the salient features of the program and of the system to be estimated.

(3) Facilitate the identification of any area or issue that could have a significant effect on life-cycle costs.

7. DESCRIPTION:

a. Once the preferred alternative(s) has been identified (C25), the Integrated Product Team (IPT) needs to start preparing/updating the documentation required for a Milestone I review (B24 & A22). The Life Cycle Cost Estimate(s) (D71, B21, & A17) will be one of the primary documents used by the Milestone Decision Authority. DOD 5000.2-M, Part 15, requires establishment of a baseline description of these cost estimates. This basis is to provide a description of the salient features of the acquisition program and of the system itself. This description is defined as the CARD. The CARD should be comprehensive enough to facilitate identification of any area or issue that could have a significant effect on the life cycle cost and therefore must be addressed by the cost analyst. DOD 5000.4-M provides guidelines for the preparation and maintenance of a CARD. The CARD is used by the team preparing the project office estimate (D53 & D71) and the agency(s) preparing the independent cost estimate(s)/component cost analysis (C23). Therefore, the CARD should be flexible enough to accommodate the use of various estimating methodologies.

b. Several cost estimates were probably prepared during the Cost and Operational Effectiveness Analysis (COEA) studies (D48) and used by the Operating Command to select the preferred alternative (C25). The basis for each of these estimates should have been documented, but may not be in the desired format, or as comprehensive as necessary for a program Milestone I review. This information should provide a good place to start when developing the CARD.

c. At this stage of the project, typically only limited technical, support, and programmatic information is available. Accordingly, the CARD for a project in Phase 0 may present the information in terms of ranges of potential outcomes. This information should be consistent with CAG direction, the

Program Data Base (Block D49) information, and the assumptions and data utilized in the COEA. Other information will become available as the preferred alternative/concept is further defined (D37B) and as the acquisition strategy is developed (D58). If a source document is referenced in the CARD, it should be included as an attachment to the CARD.

d. The necessary program information would include the system description, development and production schedules, quantities, and acquisition and support strategies. All programmatic assumptions should be documented in the CARD. Although a CARD is only required documentation for ACAT I & II program reviews, developing a CARD at this time should provide valuable insight into areas that warrant further analysis for any program. Moreover, even when not mandatory, the development of a CARD should improve both the quality and credibility of the cost estimate.

e. A project manager should head up the effort to write the CARD. The source for program description information should be functional experts (engineering, manufacturing, contracts, logistics, test and management) and Operating Command personnel. It is imperative that senior functional personnel, knowledgeable in both program acquisition and the specific program, be involved in this program planning. The results of this program definition effort should be well documented and any revisions tracked. (Note: This cannot be overemphasized, since all levels of Air Force management will require tracking between program cost estimates provided to them.)

f. A CARD should be regarded as a "living" document that is updated as technical or programmatic changes occur in preparation for DAB reviews and POE updates. The updates should document and track changes that have occurred and should incorporate additional data developed since the last update.

g. A CARD is prepared by the system program office (SPO) (or an organization specified by the sponsoring DoD Component if a program office does not exist) for each preferred alternative resulting from the cost and operational effectiveness analysis (COEA). When appropriate, CARDs can be prepared as excursions to the preferred alternative(s) or one of the other alternatives. CARDs are approved by the Program Executive Officer (PEO) or the Designated Acquisition Commander (DAC).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance:

(1). Draft Cost and Operational Effectiveness Analysis (COEA) report prioritizes alternatives (D48).

(2). Preferred alternative(s) selected (C25).

(3). Conceptual System Definition (D37b) has progressed sufficiently to support preparing draft CARD.

b. Exit: CARD has been drafted and addresses all elements required by DOD 5000.4-M.

9. KEY INPUTS AND OUTPUTS: PLEASE NOTE: This early in program, key information may not exist and the source documents may or may not have been started. Also, several activities are taking place which will further define the technical and programmatic aspects of the project. As these activites proceed, the CARD should be updated to reflect the latest information.

a. INPUTS:

- Milestone 0 Program Management Directive (B10) -- Identifies which alternatives are to be studied.

- COEA Report (D48).

- DOD 5000.4 M, Chapter 1 provides an "Outline of CARD Basic Structure" which defines what information each paragraph should contain. The following list identifies some of the information the CARD should contain. It also indicates some of the documents that may contain the required information.

(1) System configuration (D37B)
(2) Mission Need Statement (A8)
(3) System Threat Analysis Report (D50)
(4) Relationship to other systems (D37B)
(5) Major factors influencing cost (D37B)
(6) Technical description of the hardware and software (D37B)
(7) Human characteristics of the system (D37B)
(8) Preliminary Integrated Manpower, Personnel and Comprehensive Training and Safety (IMPACTS) Program Plan (P-IPP) (C11)
(9) Project Manager's Risk Assessment/Abatement Plan (D55)
(10) Unit Manpower Document (D22)
(11) Integrated Logistics Support Plan (D23)
(12) Total System Training Plan (60)
(13) Quantity Requirements(D37B)
(14) System Manpower Requirements (C11)
(15) System Activity Rates (D37B)
(16) System Milestone Schedule (D55)
(17) Acquisition Plan and/or Strategy (D58)
(18) System Development Plan (D37B)
(19) TEMP (D54)
(20) Facilities requirements (D37B)
(21) Environmental Impact Analysis (D57)

As you can see many inputs are required to develop the CARD.

b. OUTPUTS: The draft CARD. The following top level outline identifies the major sections in a CARD. DoD 5000.4-M, Chapter 1, provides a detailed description of what is required in each section.

1.0 System Overview
2.0 Risk
3.0 System Operational Concept
4.0 Quantity Requirements
5.0 System Manpower Requirements
6.0 System Activity Rates
7.0 System Milestone Schedule
8.0 Acquisition Plan and/or Strategy
9.0 System Development Plan
10.0 Element Facilities Requirements
11.0 Track to Prior CARD
12.0 Contractor Cost Data Reporting Plan

10. KEY REFERENCES:

a. DoDD 5000.2-M, Defense Acquisition Management Documentation and Reports, Feb 91. Part 15 requires development of the CARD.

b. DODI 5000.4, OSD Cost Analysis Improvement Group (CAIG), 24 Nov 92. Section D outlines the OSD CAIG's role in using and reviewing the CARD.

c. DOD 5000.4-M, Cost Analysis Guidance and Procedures, Dec 92. Chapter 1 provides guidelines for the preparation and maintenance of a CARD.

11. IMPLEMENTATION TOOLS: None Identified.

12. PLANNING GUIDANCE:

a. DURATION: The length of time to develop a CARD depends on how much of the information is readily available or has to be created. If a good job was done during the COEA, it may only take a few weeks to pull together a CARD. If you are starting from scratch, it could take months to develop all the information needed.

b. CONSTRAINTS: Limited technical/programmatic detail prior to MS I, when developing initial CARD. Much technical detail is unavailable until after MS II.

c. RESOURCES:

(1) As a minimum, initial development will probably require approximately 40 hours from each of the functional areas as previously identified. Resources required for updates will vary depending on how much has changed or been learned since the last update.

(2) The ASC cost staff has identified a focal point for CARDs.

d. LESSONS LEARNED: A project manager should lead the effort to develop the CARD; however, it is essential that the cost analyst(s) responsible for preparing the POE and the CCA participate in the review process. These analysts should perform a quality check to ensure that the CARD is as complete as possible and contains all the information they will need to prepare their estimates.

e. BEST PRACTICES: OSD is currently asking for a CARD for each alternative considered by the COEA. Air Force plans to require a CARD only for the preferred alternative(s). If more than one CARD is required, it is advisable to prepare the CARD for the primary alternative and prepare excursions to it for the other alternatives to minimize the amount of time and resources required.

f. TRAPS: None Identified.

1. **ELEMENT:** D53, TBS 1.2.4.5.2 (IFC 93-3)

2. **ELEMENT TITLE:** Update Program Cost Estimate.

3. **ELEMENT OWNER:** ASC/FM.

4. **ELEMENT STAKEHOLDER(S):** Hq USAF, Operating Command, Program Element Monitor (PEM), Project Team, ASC/AL.

5. **REQUIREMENT:** ASDR 173-1, 17 Jan 89, Aeronautical Systems Division Cost Analysis Program, defines the cost estimating responsibilities and requirements for project/program offices at ASC, and provides comprehensive guidance on estimating documentation. The requirements remain the same, regardless of ACAT level.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this activity is to generate and document an estimate of the financial requirements for the anticipated program.

b. Objective: The objective of documenting a program estimate at this time is twofold. First, since the estimate should be based on the recommended program alternative from the preferred alternative(s) selection (C25), the estimate documentation can be used to support any program or cost analysis reviews by the Operating Command or Airstaff. For ACAT I programs, or any programs that will be submitted for an Air Force Requirements Summit, the estimate will be necessary to support this review. Further, the documentation should be the basis for the formal program estimate that must be submitted for the Milestone I decision review. Second, the estimate can be used to support the budget process - if there is an opportunity to submit a budgetary input into the Air Force Program Objective Memorandum (POM) or a Budget Estimate Submission (BES) for the anticipated program, the estimate documentation would serve as the basis for the submission.

7. **DESCRIPTION:** The estimate scope should include all program life cycle costs: development, production, operating and support, and disposal. The development of the cost estimate can be grouped into five major activities which are summarized below. The reader will find a more detailed description of these tasks in Chapter 3 of Vol. 1 of the referenced AFSC Cost Estimating Handbook. In addition, more detail is provided in other chapters of the handbook as noted below:

a. Defining the estimate - this effort consists of defining the program to be estimated, determining the scope of the estimate, assembling the estimating team and assigning responsibilities, and defining estimate groundrules, assumptions, and constraints. The estimating team should consist of the cost analysts and all functional support personnel identified to support the estimating effort. This should be documented in the estimate plan, and approved by the Project Manager. The estimate plan should contain a schedule for the estimating activities based on the estimated time required to accomplish the following estimating tasks. The time required for each of the activities can be expected to vary for every estimate, depending on the size and experience level of the team, prior research and estimating efforts for the program, etc. Specific sources of information which should help define the program to be estimated are contained in Key Inputs (Section 9.a.), which follows (Chapter 4).

b. Research - the cost analysts perform initial research to determine appropriate estimating methodologies, and perform data collection to determine if information can be obtained to support the selected estimating approach(es) (Chapter 5).

c. Develop the estimating approach - the preliminary estimating methods are selected, and any estimating tools are designed or updated, as appropriate (Chapter 6).

d. Perform estimate and crosschecks - the analysts generate the detailed estimates and verify the results with any appropriate crosschecks to ensure the results are logical, reasonable, and complete. (Note: An estimate documented to support either a Milestone review or a budget submission must reflect a "point estimate". However, if possible, the estimators should provide estimate ranges to the decision makers to aid in the estimate review and approval process) (Chapter 4, Paragraph 4.5.3.).

e. Documentation and approval - the estimate must be documented and provided to project management for approval. This process usually involves presentation of the estimate to the senior program and functional managers assigned to the project. After internal approval, if the estimate is to be utilized for project decision making purposes, it should be provided to the Operating Command for review and approval. After this is completed, the estimate should be considered the formal Program Estimate, and should be the basis for all program estimate "what ifs" and budget submissions until superseded by another formal program estimate. The reader should refer to Chapter 22, of the referenced AFMC Cost Estimating Handbook, or ASDR 173-1 for more detailed information on ASC estimate documentation requirements.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance:

(1) This estimating activity should be initiated when the COEA analysis has been performed and the preferred program option has been determined (C25). The estimate should support project planning activities, and it should be generated in time to support any requirements identified by the Operating Command, assumed here to be through a Concept Action Group (C16). The development of the estimate at this time should be the baseline for future estimates, and except for (hopefully) minor updates, reflect the program estimate (D71) to be submitted for the Milestone I decision reviews. However, while this estimate should be based on the program to be recommended at the Milestone review, there may be a requirement for the generation of alternate estimates or excursions to support the decision process. These additional requirements should be directed by the project OPR (CAG) in the Operating Command. The CAG should be responsible for working issues with USAF and OSD to ensure that all issues are resolved.

(2) The need for performing an estimate at this time may also be tied to the ability to establish or update the approved program funding levels in the Air Force Program Objective Memorandum (POM). Historically, the POM call to AFMC organizations is in the summer of each odd-numbered year. To support this schedule, the project team should plan to have the estimate complete, and approved by the CAG before the end of May.

b. Exit: If the estimate is to be submitted for Summit review or inclusion into the POM, it must first be reviewed and approved by the Project Manager and the CAG in the Operating Command (C27). Note: The formal estimate discussed here should not be confused with the normal, almost continuous cost analysis and estimating that is performed in a project office. However, whether a "what-if" or formal estimate, the estimates should be documented, tracked, and archived as part of the project database.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: At this stage of the project, typically only limited technical and programmatic information is available. However, to derive a comprehensive (albeit top level) estimate of total program costs, the project team must develop a baseline program content which can be estimated. This information should be consistent with CAG direction, the Program Database (D49)

information, and the assumptions and data utilized in the COEA. The necessary program information would include the system description (to the extent possible), development and production schedules, quantities, and acquisition and support strategies. It is recommended that the programmatic assumptions be documented in the Cost Analysis Requirements Description (CARD) format. Although a CARD (D52) is only required documentation for ACAT I & II program reviews, developing a CARD at this time should provide valuable insight into areas that warrant further analysis for any program. Moreover, even when not mandatory, the development of a CARD should improve both the quality and credibility of the cost estimate.

The source for program description information should be functional experts (engineering, manufacturing, contracts, logistics, test, and management) and Operating Command personnel. In addition to providing detailed information on their functional areas, these experts will need to support the cost estimators by identifying analogous programs, and aiding in the development and justification of the selected estimating relationships. The results of the concept definition efforts (D37B), COEA Comparative Analysis (D48), Program Alternatives Analysis (D46), and the updates to the Program Database (D49) should provide information on potential program alternatives. This information should be useful in providing necessary program information which would support program definition for the purpose of developing this cost estimate. It is imperative that senior functional personnel, knowledgeable in both program acquisition, and the specific program, be involved in this program planning and estimating support. The results of this program definition effort should be well documented and any revisions tracked. (Note: This cannot be overemphasized, since all levels of Air Force management will require tracking between program cost estimates provided to them.)

b. Output: The results of the analysis should be formally documented and approved by the Project Manager and archived in the project database. The documentation should include all groundrules and assumptions, and any programmatic information necessary to replicate the estimate and fully support the cost relationships used. If the estimate will be utilized to support a budget submission or be published outside the project office, the documentation must should be accomplished in accordance with ASDR 173-1. If the program is anticipated to require either an AFSARC or DAB review, the estimate to be submitted at that time must be generated in accordance with the referenced "Cost Estimating Documentation Checklist" and the "OPERATING AND SUPPORT COST ESTIMATING GUIDE." However, no matter what the ACAT level of the program, the estimate generated here can be expected to be essentially the same estimate as the Milestone I Program Cost Estimate (D71) - hopefully, only minor updates will be required. Therefore, it would be prudent at this time to ensure that the estimate satisfies all the analysis and documentation requirements that will be required to support the Milestone decision process.

c. Follow-on activities: The estimate should be provided to the Operating Command CAG for review and approval if the estimate is to be published for uses other than project planning within the project office, such as for Summit reviews or POM submissions. If the estimate will be used to support an Air Force Summit review, the CAG should ensure the estimate satisfies the directed Summit requirements, and is consistent with the COEA analysis and results.

10. KEY REFERENCES:

a. AFR 173-1, The Air Force Cost Analysis Program, 3 Oct 80 - Establishes the Air Force Cost Analysis Program, specifies objectives and functions, and assigns responsibilities.

b. AFR 173-11, Independent Cost Analysis Program, 7 Oct 86 - Identifies requirements for Independent Cost Analysis and Program Office Estimates.

c. DODD 5000.4, OSD Cost Analysis Improvement Group, 24 Nov 92 - Specifies the responsibilities and functions of the CAIG.

d. AF Instruction 10-601, Missic.ı Needs and Operational Requirements Guidance and Procedures, 16 Feb 1993, paragraphs 1.3.10, 1.4, Attachments 1, 2, and 5 - Provides guidance on the CAG and COEA.

e. AF Sup. 1/DoDI 5000.2, Aug 92 (DRAFT), Part 10A - Air Force cost estimating requirements.

f. DoD 5000.4-M, Cost Analysis Guidance and Procedures, Dec 92, Chapter 1 - CARD preparation instructions.

11. IMPLEMENTATION TOOLS: ASC/FM can provide information on the following cost analysis aids and tools:

a. The AFSC Cost Estimating Handbook, Vol I (undated) - estimating and documentation information.

b. The AFSC Financial Management Handbook, Nov 92 update - financial information.

c. ASC/FM Cost Workstation - a computer automation aid and application tool.

d. The ASC Cost Data Center - historical cost data, cost models, and other cost related materials and references.

e. AFMC Cost Estimating Handbook, Vol. II, Aeronautical, 21 Sep 92 - estimating and documentation information.

The following should be referred to for documentation requirements:

f. SAF/FM "Cost Estimating Documentation Checklist," 16 Nov 92

g. OSD CAIG "OPERATING AND SUPPORT COST ESTIMATING GUIDE," May 1992.

12. PLANNING GUIDANCE:

a. DURATION: The time required to perform and document an estimate must be planned based on the specific conditions and methodologies chosen. The time can be expected to vary for every estimate depending on the program complexity, data availability, and the size and experience level of the estimating team. Early in the program life cycle, estimating activities are typically based on parametric analysis and should take 2 to 4 months. Again, this can't be considered firm - the time required to perform and document an estimate must be planned based on the specific conditions and methodologies chosen.

b. CONSTRAINTS: The greatest limitations in the performance of the estimate are lack of program definition, and the lack of relatable historical cost information . If sufficient personnel aren't assigned to accomplish the analysis in time to meet the required schedule, support should be requested from staff home offices or the Program Development SPO (ASC/XY).

c. RESOURCES: The estimate is usually performed by one or two cost estimators, working the estimate as a primary duty. Operating and Support cost estimating support from ASC/AL may also be required if the project office does not have the in-house capability to perform this analysis. Engineering, logistics, test, and program management personnel should be formally assigned to the estimating team, even if dedicated only part time, and they can be expected to need to provide 40 - 80 hours each for technical support. Computer assets are considered a necessity for both computation and documentation.

d. LESSONS LEARNED: The Cost Staff (ASC/FMC) should be contacted to have a staff cost analyst focal point assigned to support the analysis effort. This early ASC/FMC involvement at the initial stage of the estimate should help get buy-in on analysis assumptions and would be a valuable resource in data searches and estimating methodology selection. The analyst could also be a valuable aid in supporting the estimate through the management review process. Additionally, the cost staff may be able to assign other cost analysts to generate elements of the estimate, or perform program schedule analysis. It should be expected that many program variations and estimating excursions will be performed to support the decision making process, and each of these should be documented and tracked by both program content and estimate results. Failure to do so can result in significant rework and loss of credibility. This estimate should contain a comprehensive track to the prior approved estimate (e.g. D47), and any other analyses which have been published.

e. BEST PRACTICES: In building this cost estimate, it is expected that the near-term activities will be better defined than the long-term effort. In preparing for a Milestone I, a comprehensive estimate for the Demonstration/Validation phase should be generated, while succeeding phases would be estimated at higher levels. In all cases, effort should be made to incorporate the best information available. Also, the cost analyst should develop a comprehensive estimate plan which defines program content, describes the estimating approach and the estimate schedule, identifies estimate team members and assigns responsibilities, and identifies estimate groundrules and assumptions. The management approval of this plan should ensure the commitment of necessary resources, and baseline the program to be estimated. Lack of a comprehensive plan may result in unnecessary perturbations, rework, or schedule slips.

f. TRAPS:

(1) It is imperative that cost analysts identify methodologies and data requirements as soon as possible so these needs can be made known. If this information is not available, work-arounds must be made as soon as possible to maintain the planned estimating schedule. Also, it is essential that the estimating and functional team members be carefully selected, so that the best possible analysis can be performed at this time, and a sound financial baseline can be established to support planning activities.

(2) The estimate discussed above had its genesis in the COEA analysis, and during the milestone reviews, the estimate will be compared to the estimates for the other COEA alternatives. Due to this, IT IS ESSENTIAL that any changes to the program content, assumptions, or estimate results be incorporated into the COEA. Failure to do this may result in insufficient or contradictory information provided to the Milestone decision makers and a possible delay in program approval.

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1. ELEMENT: D54, TBS 1.3.1.3 (IFC 93-3)

2. ELEMENT TITLE: Develop Preliminary Test and Evaluation Master Plan (TEMP)

3. ELEMENT OWNER(S): USD(A)DTE, DOT&E, Project Office

4. ELEMENT STAKEHOLDER(S): Project Office, USD(A)DTE, DOT&E, Operating Command, Implementing Command, Product Centers, PEO, DAC.

5. REQUIREMENT:

a. DoDI 5000.2, 23 Feb 91, Part 8. Policies and procedures for conducting test and evaluation during the acquisition process.

b. DoD 5000.2-M, Feb 91, Part 7. How to write a TEMP and format for a TEMP.

c. AFR 80-14, 3 Nov 86 "Test and Evaluation." Outlines policy for test and evaluation activities during development, production, and deployment of systems in the Air Force.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose of this block is to initiate the process of test planning required for the potential program.

b. Objective: The objective of this block is to begin the development of the TEMP and start the process of planning the test operations for the project and potentially for the program in order to have a TEMP approved by the appropriate offices in place for the Milestone review.

7. DESCRIPTION: At this point in the process a potential program is being identified. The project is looking into the potential solutions and coming to an initial conclusion on what the preferred concept may be. The TEMP is to be written on the preferred concept prior to the Milestone review. The TEMP must integrate numerous project / program documents and the planning team to draft and prepare a TEMP must get started early. The test community must get involved in many of the decisions that are essentially program decisions. There are testability issues and integration issues that the test community should ensure are addressed. The IFC calls for the TEMP to be drafted here in order to have a draft ready for the roundtable discussions (D57).

a. A TEMP is required for all HQ USAF programs directed by a Program Management Directive (PMD). It may also be required for an information systems program directed by an Information Systems Directive (ISD). The TEMP is developed to integrate critical issues, test objectives, evaluation criteria, systems characteristics, responsibilities, resources, and schedules for test and evaluation (T&E). The TEMP is viewed by most in the acquisition process as an "executive overview" of the program. Not only does it pull together in one document the schedule, cost, and performance criteria, but it also addresses the constraints of the program in terms of resources and time. The TEMP should be prepared for each Milestone starting with Milestone I, and then updated at each Milestone review and/or when a significant program change occurs. The TEMP will get more detailed as the program matures. Initially, it should identify broad test concepts, long lead resources required, and as much cost information related to the T&E requirements as possible. This will allow the decision makers the best information possible upon which to make their determination of program viability.

b. The TEMP documents the overall structure and objectives of the test and evaluation program. It provides the framework within which to generate detailed test and evaluation plans and it documents schedule and resource implications associated with the program. IAW DoD 5000-2-M, the TEMP should not exceed 30 pages. Appendix A, Bibliography, Appendix B, Acronyms, and Appendix C, Points of Contact, are excluded from the 30 page limit as are any annexes that may be deemed appropriate by the

DoD component. Copies of the Mission Need Statement (MNS), System Threat Assessment Report (STAR), and Operational Requirements Document (ORD) will be submitted with the TEMP. Other documents referenced in the TEMP will be submitted to the Office of Secretary of Defense upon request. These documents will be submitted by the program office when directed by the Milestone Decision Authority. There is also guidance put out by the Under Secretary of Defense for Acquisition that states "the MOEs, MOPs, and criteria in the ORD, the COEA, the TEMP and the APB, should be consistent," (measure of effectiveness (MOE), measure of performance (MOP)). A sample TEMP is contained in DoDM 5000.2M Part 7. Additionally, the TEMP must be consistent with the systems engineering master plan (SEMP), which contains the basis for the entire engineering effort and lays out test requirements for various aspects of the program. The SEMP should be a key document used to develop the TEMP. The ORD contains a requirements correlation matrix (RCM), which is the basis for user-stated needs and requirements and is a required part of the TEMP.

c. AFR 80-14 states the implementing command is responsible for preparing and coordinating the TEMP. The Test Director within the Program Office is the person ultimately responsible for the preparation and approval of the document.

d. A TEMP is normally developed by a Test Plan Working Group (TPWG). Initially, the SPO prepares a draft TEMP and distributes it to all applicable agencies for review. It is then discussed at the initial Test Plan Working Group (TPWG) meeting. The SPO will revise the document as required after this meeting. All test participants will then review the TEMP again to ensure all requirements are addressed. The participating, operating, supporting and Operational Test and Evaluation (OT&E) Commands coordinate on the TEMP prior to submittal to higher headquarters.

e. TEMPs for all acquisition category I programs and other programs designated for OSD T&E oversight will be approved by the Director, Operational Test and Evaluation (DOT&E) and the Director, Test and Evaluation (DTE) who works for the Under Secretary of Defense (Acquisition). Fifteen copies of the preliminary TEMP are submitted 45 days (draft) and 10 days (final), prior to the Defense Acquisition Board (DAB) Milestone I Committee review of the program. For programs that do not meet a DAB, 15 copies of the preliminary TEMP are submitted 45 days (draft) and 10 days (final) prior to the Component Milestone Decision Authority review board.

f. TEMPs not requiring OSD approval will be approved by the component Milestone decision authority. Delegation below the headquarters level is authorized. Coordination of other participating MAJCOMs is required.

g. All submitted draft and/or Service approved TEMPs shall be examined for completeness, accuracy, and consistency by elements of the OSD staff, as deemed necessary by the DTE.

h. A TEMP is considered approved when the DTE has completed the OSD coordinated review, reconciled all OSD and coordinating Component command comments with service interests, and obtained the DOT&E and DTE approval signatures. The formal response objective of a TEMP approval, including the preliminary plan at Milestone I, is within 45 days of submittal to the Director Test and Evaluation (DTE) by the DoD component.

i. The TEMP must be updated at each Milestone review, when the program baseline has been breached, or on other occasions when the program has changed significantly. Updates may be made by use of "correction pages" and by the use of memoranda indicating "no change."

j. Test Plan Working Group. (TPWG)

(1) The TPWG acts as a forum for test and evaluation (T&E) related subjects. The TPWG helps draft the test and evaluation master plan (TEMP). In accordance with AFR 80-14 , Section B.8, the implementing command forms and chairs a Test Planning Working Group (TPWG) for each HQ USAF-directed acquisition program that requires T&E. For smaller programs, only one TPWG may be needed; for large scale programs (i.e., new aircraft), many TPWGs may be operating concurrently. The

TPWG is comprised of the working level representatives of all agencies (RTOs, PTOs, Operational Commands, centers of expertise, contractors, etc.) participating in the specific test effort at hand. TPWG members are responsible for constructing detailed test plans, preparing support material for technical and safety reviews, conducting and monitoring test, reducing and analyzing test data, evaluating results and preparing test reports. TPWGs convene when required. Test Managers (TM) must ensure appropriate planning and programming has been done to enable all required agencies to participate in specific TPWGs for the duration of the specific test effort.

(2) The TPWG should be formed as soon as the MNS and STAR are developed and the ORD is drafted. Many times the program is not yet manned and the test manager is forced to operate on his/her own until a project manager/project team is established. This group must be formed in time to allow for early and thorough test planning and coordinating with proper agencies. It functions as long as testing is planned for the system to assist in updating the TEMP and to monitor test progress. The TPWG should continue until the project is terminated or all testing has been accomplished.

(3) The TPWG team should include representatives from all DT&E agencies external to the SPO that may be involved during the life of the project. Based on anticipated test requirements, the test director (TD) will establish and formalize (perhaps through Memoranda of Agreement or contract) relationships with all agencies required to participate in DT&E over the expected life cycle of the system. The agencies represented might include but are not limited to developmental test centers; laboratories; operational commands; operational test agencies/centers; development and/or support contractors; Air Force centers of expertise; intelligence agencies; Army, Navy, Joint or other government agencies (i.e., NASA), etc. Ideally, a single focal point from each participating agency will be identified for inclusion on the test team. Memoranda of Agreement and contracts will specify exactly what is expected from each agency in planning for, programming for and conducting system DT&E. The TD may need to consider budgeting for support for some agencies which, while crucial to the test program, have severely limited budgets. When these agencies and representatives have been identified they should all become part of the TPWG.

(4) The TPWG must accomplish the following to plan the test and get the project going on the right foot:

Validate test requirements
Develop test concepts
Formulate the test approach
Plan test resources
Develop the TEMP

(5) The time required for a TPWG varies with the complexity of the project. It could be as little as a day, to as much as several months. The TPWG typically meets once a quarter, or as required as you approach a milestone review. Team members include all functional disciplines that could affect the design or test of the system. Additionally, you should include the headquarters personnel that are the approval authorities for the TEMP. The TPWG will require a meeting facility appropriate to the security level of the project. Further, the size of the TPWG will dictate the facility requirements for the meeting.

k. Test Management Council (TMC)

(1) If DT&E program scope warrants oversight and guidance at a higher than the working level, the TD may choose to establish and chair a Test Management Council (TMC). Typically, a TMC is comprised of upper management representatives from the key agencies involved in system DT&E. The TMC convenes on a periodic basis (i.e., quarterly or semiannually) to review DT&E program progress in relation to overall program goals and objectives. If contractor involvement in the TMC is desired, appropriate contractual provisions must be made. Again the TD may need to plan and program resources to support conduct of the TMC. TMC participation may need to be included in various MOAs between the SPO and agencies participating in DT&E.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The TEMP is a summary of the project/program, as well as a test and evaluation plan. Therefore, most of the planning for the program must be accomplished (at least in parallel) prior to final TEMP preparation. TEMP preparation should begin as early as possible. The actual TEMP is prepared prior to the DAB review, when sufficient information is obtained to complete the TEMP. This normally includes information from the ORD, MNS, SEMP, STAR, and the cost and operational effectiveness analysis (COEA). Exit criteria are when the TEMP is approved by DTE and DOTE prior to the DAB. The TEMP is never really finished. It is updated whenever major changes occur in the program and/or before each milestone review. Annual updates are not required.

b. Exit: The exit criteria for this block is to have an approved TEMP ready to be delivered to the milestone review panel.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: For purposes of the IFC inputs to this block are: C26 - Staff and Coordinate ORD I (user), D50 - Develop Preliminary System Threat Analysis (Report((STA(R)); D51 - Develop Preliminary Acquisition Program Baseline (APB), D37B Conduct Concept Definition for Preferred Alternative(s).

Approve/Validated STAR - must be reviewed and pertinent threat information incorporated into the TEMP. The STA(R) will be sent to the review board with the TEMP so do not repeat the STA(R) just put appropriate information in the TEMP.

Operational Requirements Document must be updated and incorporated into the TEMP.

Cost and Operational Effectiveness Analysis (COEA) must be reviewed and be consistent with the TEMP (Block D48).

A Formulated Test Team
An Established TPWG/TMC
Validated Test Requirements
Initial Test Concept
A Formulated Test Approach
A Plan for Test Resources

b. Outputs: Output from this block is to D57 Conduct Strategic Roundtable.
Output products are: An updated test strategy for next phase and inputs for long term test resource requirements planning

10. KEY REFERENCES:

a. DoDI 5000.2, 23 Feb 91, Part 8. Policies and procedures for conducting test and evaluation during the acquisition process.

b. DoD 5000.2-M, Feb 91, Part 7. How to write a TEMP and format for a TEMP.

c. AFR 80-14, 3 Nov 86 "Test and Evaluation " Outlines policy for test and evaluation activities during development, production, and deployment of systems in the Air Force.

d. AFR 55-43. Contains guidance on OT&E.

e. Memorandum from the Under Secretary of Defense for Acquisition, Mar 92, Subject - "Implementation Guidelines for Relating Cost and Operational Effectiveness Analysis (COEA) Measures of Effectiveness (MOEs) to Test and Evaluation." Says the COEA, MOEs, and the TEMP must be consistent.

11. IMPLEMENTATION TOOLS: OSD has developed software that aids in the review of a TEMP prior to submittal to OSD for approval. This software is called the Automated Test Planning System (ATPS). POC is OUSD(A) /DT&E DSN 225-4608. Also there are sample TEMPs available in the resource library at YXP. The single face to the customer organizations in AFMC can help with TEMP planning and will help with inputs for the total test and evaluation planning of the program.

12. PLANNING GUIDANCE:

a. DURATION: The time required to build a TEMP varies with each program. There is no specific guidance for this activity. Since the TEMP must be consistent with the ORD, the COEA, and the APB it is wise to try to have these documents in hand prior to the final TEMP preparation. Reality tells us this is unlikely. The next best thing to do is get all the data from these documents in as final a form as possible (draft if nothing else). Then get the key people who put these documents together with the TPWG as late as possible and finalize the TEMP just prior to submittal. The process of planning a test is lengthy. It should be started as soon as possible after the basic program is defined or at least as soon as a framework for the program is developed.

b. CONSTRAINTS: There always seems to be no time to do the TEMP. It also seems that when the TEMP is being written there is a lack of system and program definition.

c. RESOURCES: The TEMP should identify and project the need for the key resources needed for the life of the program. These should include DT&E, OT&E, and live fire test and evaluation. Long range T&E resources must be identified to ensure they are in place when the program needs them. These should include elements of the National Test Facilities Base (which incorporates the Major Range and Test Facility Base (MRTFB), capabilities designated by industry and academia, and Major Range and Test Facility Base test equipment and facilities), unique instrumentation, threat simulators, and targets. As system acquisition progresses, the preliminary test resource requirements shall be reassessed and refined and subsequent TEMP updates shall reflect any changed system concepts, resource requirements, or updated threat assessments. Any resource shortfalls which introduce significant test limitations should be discussed with planned corrective action outlined.

d. LESSONS LEARNED:

1) Build the test objectives matrix as early as possible - update it often - it can be used to track accomplishments and estimate costs/resources/ etc.

2) There are 14 review agencies at OSD for documentation review prior to the DAB. They each want to see the TEMP and use it as an executive summary type document.

3) Software and hardware are integrated in every paragraph of the TEMP. They are no longer addressed separately. You must show how your program's test plan is integrated for both hardware and software.

4) The T&E community should make major inputs to the exit criteria for the acquisition decision memorandum (ADM). Then you can aim the T&E effort at those exit criteria and answer the questions that are important to the program, rather than nice to know information.

5) Before you build the test plan, you must determine the evaluation criteria (MOEs) so you can then determine the data required to answer the evaluation questions, i.e. do your evaluation plan first, then your test plan.

6) Make sure you invite DOT&E and USD(A)DTE to the TPWG. Neither may not come, but should still be invited. They will appreciate it and be more prone to look favorably at your TEMP when they must review it prior to their approval process.

7) The TEMP should be consistent with many documents, including the SEMP. Included in the SEMP should be a discussion or at least an acknowledgment of the AFMC Design to Test policy.

8) The test community in the early portions of a project/program should try to be involved in many aspects of the overall planning. Some suggested activities and when they should be accomplished are on Attachment 1 of this data sheet.

Other lessons learned that apply to test planning and TPWGs:

1) Everything that is done at the start of the program affects the conduct of the program (good or bad). The eventual outcome of the program is a direct result of the initial planning. Your inputs for test planning at the beginning of the program will set up numerous activities that must be well thought out so the program will function. Spend lots of time thinking through the test resources and test objectives at the start of the program.

2) Make sure you take a long range view of the test planning process to ensure that the program does not run into problems that could be anticipated at the outset.

3) The test community (Test Director from SPO) must review every major program input (document, briefing, etc.) to keep the program on the road to a testable and viable system. Many decisions made for convenience have testing implications.

4) The SPO test director must make it their job to be the test conscience at all phases of planning. For example, the TD should make sure test inputs and considerations are addressed in the RFP, SOW, CDRL, User Specs, SEMP, ORD, RCM, etc.

5) The SPO test director must be the one to coordinate early with outside testing organization(s). You are the one responsible for ensuring adequate involvement by the folks who will do the test.

6) The test director is in a position to be a representative of both the users needs/desires and the needs and requirements of the test community who will be the first to do the work.

7) Make sure the TPWG has inputs from the SPO, RTO, Operating and Supporting Commands, the contractor and the test wing.

8) Test considerations should be folded into the overall Acquisition Strategy (Block D66).

9) The TPWG can be an overwhelming activity. There are usually numerous people interested in the activities of the TPWG. If you are not careful, the TPWG will get too big and function as a review group, not as a planning group. Make efforts to only have the right people in the TPWG. The Program Manager will make many decisions affecting the conduct of the test portion of the system development. Make sure all these program decisions are factored into the TPWG to keep from getting a disconnect between the program manager and the test community.

e. BEST PRACTICES: Do not delay in drafting the TEMP. Put a priority on keeping the TEMP up to date and making it a working document instead of an historical document. Get a good test manager on board early.

f. TRAPS: If you do not start early, you will not produce a quality TEMP. If you only grab an old TEMP and force fit your program into it, you will have a poor TEMP. If you try to do the TEMP without

help from the single face to the customer test organizations and the gray beards in the command, you will have a poor TEMP.

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1. ELEMENT: D55, TBS 1.3.2.1 (IFC 93-3)

2. ELEMENT TITLE: Develop Roundtable Execution Plans

3. ELEMENT OWNER(S): AFMC/XR in conjunction with Project Leader/Manager/Director (as appropriate). (There are several different owners for the various subelements of this data sheet. The individual subelement owners are listed with the description of that particular subelement.)

4. ELEMENT STAKEHOLDER(S):
- All Product and Logistic Centers
- Functional Home Offices
- Center XRs and ASC/YX
- System Program Offices
- All AFMC Laboratories
- All Test Centers

5. REQUIREMENT: AFMC Pamphlet 800-7, 20 November 92 Integrated Acquisition Strategy Process (section B) -- This document provides the catalyst for developing the overall IASP execution plan. The requirements for the subelements are provided with the description of that particular subelement.

6. PURPOSE AND OBJECTIVES:

a. PURPOSE: The AFMC Integrated Acquisition Strategy Process (IASP) was established to ensure the early involvement of senior, experienced advisors in the formulation of the acquisition strategy for any new acquisition. The purpose of the Roundtable Execution Plan is to map out the level of this top-down involvement.

b. OBJECTIVES: The overall objective of the IASP is to "ensure that a sound, disciplined, functionally integrated program acquisition strategy is developed to meet the users' needs within resource constraints" (AFMCP 800-7). The overall objective of this element is to build the plan for developing the project acquisition strategy.

7. DESCRIPTION: The development of a Roundtable Execution plan becomes necessary when the operating command has made its selection of the preferred concept alternative (C25) and the implementing command has begun its effort into defining that preferred concept (D37[illegible]. The Integrated Acquisition Strategy Process (in either the full or tailored form) is applicable to all acquisitions except:
- Basic Research and Exploratory development (6.1 and 6.2 funds).
- Advanced developments (6.3A funds) that are less than $25 million (FY90$).
- Technology Transitions (PRAM, RAMTIP, and FACTS) less than $5 million (FY90$).
- Spare parts as defined by AFR 10-601 and repetitively procured items that do not involve design, development, and testing.
- Repetitively procured noncomplex services.

If a particular project or program does not fall into one of the above categories, there is an IASP in its future. The first step is to determine if there will be executing a full-blown IASP or a tailored version.

A full IASP is required for all acquisition projects/programs that require an acquisition strategy review by: 1) Defense Acquisition Executive (DAE), 2) Air Force Acquisition Executive (AFAE), or the 3) Program Execution Officer (PEO). All other acquisitions (except those excluded above) should plan on having a tailored version of the IASP but a full-blown IASP is still a possibility--the decision is up to the Project Leader/Manager/Director (as appropriate).

As soon as the Operating Command's basic requirements are identified and the Air Force commits resources to the acquisition effort, the assigned Cognizant Program Decision Authority (AFMCP 800-7 defines that individual as the Program Executive Officer (PEO), Designated Acquisition Commander (DAC), or the appropriate Laboratory Commander) along with the Project/Program Manager determine the IASP plan. Elements that must be considered in the tailoring effort include:

- IASP Entry Point -- Where is top-down type of involvement necessary? On certain smaller projects, the first two Roundtables might not be necessary and the best bet is to go straight to the ASP (Acquisition Strategy Panel) (D61) for a review of the program plan and acquisition strategy and then follow-up with a low level Operational Roundtable (D67) to ensure your documentation tells a consistent story. If the particular acquisition is small in dollars, but somewhat politically sensitive, it might be best to convene a Strategic Roundtable (D57) to get senior guidance (and buy-in) from the beginning and then skip the Tactical Roundtable (D59) (but still accomplish those tasks within the Project/Program Office) and then reconvene at the ASP.

- IASP Participants (who and how many) -- This task is going to be a critical one to the IASP Execution Plan. For example, on a $200 million program to develop and procure a new low observable UHF antenna for the F-15 and F-16 fleets, including the Air Combat Command Commander and the Air Force Acquisition Executive as members of your Strategic Roundtable is probably overkill. However, if planning the Strategic Roundtable for a $35 billion NASP (National Aerospace Plane) Derived Vehicle, make sure that at least this level of senior decision-making participation is sitting around the table.

- Duration of Roundtables -- The $200 million antenna program might be able to sort through the Strategic Roundtable topics in an afternoon on relatively short notice. The NASP Derived Vehicle might require 2-3 days to sort through the same topics. To ensure the right group of participants, allow for quite a bit of lead time.

- IASP Schedule -- Develop a plan addressing, not so much the exact calendar dates for the Roundtables, but the interval between the various types of Roundtables to be included in the overall Roundtable plan. Six months or more between the Strategic Roundtable and your first Tactical Roundtable on the NASP Derived Vehicle might be appropriate, but the UHF antenna project might skip the Tactical Roundtable and go to the ASP in 3 months.

It is important to understand that it is not only the amount of money involved with the project, (although it's a big contributor) that determines the level of the IASP in which the program should engage. Such topics as political sensitivities, who the contractor is, who the customer is, program risk, and a host of other considerations need to be looked at by the Project/Program Manager and the Cognizant Program Decision Authority need to work out during this task. In order for the Project/Program Manager to adequately prepare for this planning session, he/she needs to have brought together key members of the Project/Program Team to pull together a plan for executing the next phase of the project/program. If the project/program is heading towards Phase II, III, or IV, it already has an approved Acquisition Strategy Report (Annex C of the Integrated Program Summary to use as a baseline), but if entering Phase I, this document has not yet been developed (or if it has, it has not yet been approved). At this point consider the documents and functional plans listed below. Building a "strawman" for each of these relevant documents/plans is an excellent place to start Phase I planning. It will also give a head start on putting together your Integrated Program Summary. Below is a very brief description of each of those documents/functional plans.

- IWSM (Integrated Weapon System Management) Master Plan -- This plan represents a consolidation of the Integrated Program Summary (directed by DoDI 5000.2) and the Weapon System Master Plan(WSMP) (AFR 400-3). This plan is being automated so it can be prepared from an existing and computerized database. The actual format for this plan is still being formalized but should be available by Sep 1993. The primary source documents for drafting the initial IWSM Master Plan should be AFMC Pamphlet 800-60, IWSM Guide, 29 May 92, and the Oct 92 version of the IWSMP handbook developed by AFMC/XRM.

- Schedule -- When referring to schedules in the phase planning arena, we are not referring to the detailed work package level schedules associated with work breakdown schedules. The scheduling task referred to here is of a programmatic nature. It will include the major tasks that need to be completed in the next phase of the project/program such as IASP schedule, milestone decision cycle,

and major reviews. It is time phased, unlike the SEMS, and needs to reflect the start and finish relationships of the various tasks which need to be accomplished in the next phase. The desired outcome of this activity is an estimated duration for the next phase with a roadmap on how to navigate through that Phase. The main purpose of an integrated master schedule is to allow the manager insight into the health of his/her project/program. A secondary use of the schedule is as a quick response tool when executing any of the numerous "what if" exercises. The best tools to have when beginning to lay out the schedule for the next phase of the project/program are: a good understanding of what needs to be done in the next phase and a large dose of reality and common sense. Make sure the team's best folks working the initial schedule.

- Risk Management Plan (RMP) -- This plan takes a hard look at the risk involved with the project/program. The normal approach to risk management is three pronged: 1) Risk Assessment, 2) Risk Analysis, 3) Risk Handling. While working through each of these broad areas consider, as a minimum, these specific project/program risks: Technical, Programmatic, Supportability, Schedule, and Cost. Elements of your Risk Management Plan will be interwoven throughout the other functional plans and milestone decision documents. The best place to start when you begin sketching out the Risk Management Plan is part 5, section B, of DoDI 5000.2 and part 4, section E, of DoD 5000.2M. Defense Systems Management College also has an excellent textbook in this area entitled Risk Management: Concepts and Guidance. This should be required reading for anyone beginning a project/program risk assessment. A third source of information is the 20 Aug 92 Acquisition Risk Management Guide. This guide needs to be on hand for your Risk Management Plan discussions.

- Program Protection Plan (PPP) -- At this point in the project/program, most of the major security issues have already been encountered. The Program Protection Plan is the overall Operational Security Plan for the project/program. Some of the items to be considered in the PPP include: Essential Elements of Friendly Information (EEFI), security capabilities and procedures at all the facilities involved with the project/program, security classification guide, required security resources, etc. Start preparation for the development of a PPP by reviewing the project's security procedures to date and refer to DoDI 5000.2, part 5, section F. Another excellent source of information is the Standard Operating Procedure for Development of a System Program Protection Plan dated 12 Jun 91.

- SEMP (Systems Engineering Master Plan) -- This document describes all the activities the contractor and government engineers will accomplish to meet the systems engineering criteria outlined in Military Standard 499B (MIL-STD-499B). The SEMP covers how the contractor will accomplish these activities, who will accomplish them, how those activities will be controlled, and technology will be transitioned. If the project does not need a contractor, describe how the project/program team will accomplish these activities. At this point of the project/program life, it is not possible to put a lot of detail into this plan, but, it forces the team to ask a lot of critical questions about the program/project (the RFP, the proposals themselves and a myriad of other bits of information are needed to finalize this plan). MIL-STD-499B is the first place to look when you begin considering the SEMP.

- SEMS (Systems Engineering Master Schedule) -- The SEMS is a top-level tool used to measure progress towards completion of the systems engineering activities outlined in the SEMP. The SEMS includes a set of exit criteria for each of the systems engineering tasks listed in the SEMP which must be successfully met prior to proceeding to the next task. Despite the word "schedule" in the title, the SEMS is not a time-line. It is an event based flow of activities. Progress towards completion is based on a percentage of the completed systems engineering tasks, not on where the project/program is based on the calendar. Again, MIL-STD-499B is the first place to look when preparing the SEMS.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance into this process occurs with the selection of the preferred alternative (C25) based on the COEA (D48).

b. Exit criteria have been met after developing the IASP execution plan in conjunction with a Cognizant Program Decision Authority and assembling a very basic "strawman" for the key functional plans. These functional plans will be developed more completely as part of the Operational Roundtable (D67) if the project follows this route as part of the IASP execution plan or as part of the milestone decision support package.

9. KEY INPUTS AND OUTPUTS:

a. Inputs include: the information gathered from the Program Alternatives Analysis (D46), the Preliminary Acquisition Program Baseline (D51), and the Milestone 0 PMD (B10).

b. Output is the IASP Execution Plan. This plan is the roadmap for entering the next step in the IASP process. Normally, the next stop is the Strategic Roundtable (D57), but as discussed above several other options are possible.

10. KEY REFERENCES: AFMC Pamphlet 800-7, Integrated Acquisition Strategy Process Guide, 20 November 1992. The key references for each of the sub-elements were cited in the description section discussing that particular subelement.

11. IMPLEMENTATION TOOLS: AFMC Pamphlet 800-7 contains several attachments with samples on how different projects/programs might tailor the full-blown IASP to meet their needs. These examples include the recommended entry point and the suggested participants. The entire IASP approach is relatively new and, to date, there are no automated tools.

12. PLANNING GUIDANCE:

A) DURATION: The time required to develop the IASP execution plan should only be 1 day if you've done your homework ahead of time. The time required to build the "strawman" for the various functional plans depends on how much effort you put into it. At this point, your goal is to focus the planning team on the size of the task ahead of them. If you choose to build a detailed functional plan at this time, plan on a series of 1 to 2-day working groups for each plan. If you elect to frame the plan at this time, the process should be able to be completed in a single 2 to 3-day working session.

B) CONSTRAINTS: Getting the time on the calendar of your Cognizant Program Decision Authority will be the only real constraint you have for developing the IASP plan. For the other functional plans, the availability of the right functional experts in your project/program offices is your primary constraint.

C) RESOURCES: The only resources you will need are the experts from each of the key functional areas and a facility appropriate for the size of your planning team to conduct a multiday working session.

D) LESSONS LEARNED: None to date.

E) BEST PRACTICES: The entire process as outlined in the description section is considered to be a best practice. The amount of effort put into outlining the functional plans will pay big dividends down the road. The entire process is given more credibility if you involve the right folks in this planning session. Don't be hesitant to go outside of your own organization if you feel you might need some extra expert advice. A good place to look is to an organization who has recently gone through this same exercise.

F) TRAPS: There is a tendency for the smaller projects/programs (which are the only ones allowed to tailor their IASP plan) to "over tailor." Take a long hard look at what you are cutting out to save a little time.

1. ELEMENT: D56, TBS 1.3.1.4 (IFC 93-3)

2. ELEMENT TITLE: Update Systems Threat Assessment (Report) (STA(R))

3. ELEMENT OWNER(S): DIA/DT-AS, AFISA/INK Project Office

4. ELEMENT STAKEHOLDER(S): Product Center Director of Intelligence (DI), AFISA/INAA, DIA/DT-AS, AFIA/INK Project office, AFMC/IN

5. REQUIREMENT

a. DoD 5000.2-M, Feb 91, Part 5. Policies and procedures for developing a STA(R)

b. DoDI 5000.2, 23 Feb 91, Part 4, Section A, pg. 4-A-1. Defines intelligence support required for acquisition programs.

6. PURPOSE/OBJECTIVES:

a. Purpose: The STA(R) is defined in block D50. Here the purpose is to update the threat document based on inputs from the summit process and make any changes required from the DIA review.

b. Objective: The objective here is to have an updated threat document for the upcoming Milestone review.

7. DESCRIPTION:

a. Following the summit process (B15) and validation by DIA (A14) the STA(R) must be updated. Then the updated document is given to the operational Roundtable for "harmonization" of the required documents for the upcoming milestone review. The Director of Intelligence (DI) is responsible for updating the STAR. This update should include any new or refined data pertinent to the mission of the acquisition program under consideration. The STAR was written to include an assessment of those projected capabilities, doctrine, strategy, tactics, organization, equipment, and military forces that a potential enemy could use to defeat or degrade the US system during its employment. Any updates to these threats must be considered. The STAR is the basic authoritative system threat assessment tailored for and focused on a major defense acquisition program. STARs are required for ACAT 1C and 1D programs and for major modification programs, as defined by AF Policy Directive 10-6. It will be the primary threat reference for the Operational Requirements Document (ORD), the Cost and Operational Effectiveness Assessment (COEA), the Integrated Program Summary (IPS), and the Test and Evaluation Master Plan (TEMP). All updates to the STAR should be forwarded to the project personnel responsible for these documents.

b. When the DI, in coordination with the Project Director (PD), Air Force Intelligence Support Agency (AFISA), Defense Intelligence Agency (DIA), HQ AFMC, and the using command determine the STAR needs to be updated, the DI organization will draft the updates to the STAR, or administer a contractor's efforts to update the STAR. ASC/FASTC/TAIA, DSN 785-4285, writes and updates the STAR for programs at ASC. In this case the STAR is updated just prior to the major review cycle prior to a Milestone I review. The STAR was written to support the preferred concept(s) and should be updated to support the current preferred concept(s) selected by the MAJCOM following the development of the COEA for Phase 0. Only one STAR is developed for each potential program, and it should be based on the preferred concept(s) to be presented at the Milestone review. This is the time to take the final best guess of the preferred concept and solidify the STAR. The STAR should be able to support more than one concept if they are similar. If more than one concept is to be proposed and the concepts are radically different it may be necessary to develop separate STARs. This would be a unique situation and is highly unlikely.

c. The intelligence community and the project office should formally agree (via MOA) to update the STAR prior to any subsequent Milestone reviews. If a concept action group (CAG) has been formed, they should notify the appropriate intelligence agency when the STAR or STA requires updating or revision. Specifically, a final STAR/STA is required when the milestone review is imminent. The CAG should be the ones to notify the intelligence folks to make the STAR/STA final.

d. Remember, any changes to the STAR must be coordinated with DIA and/or AFISA to ensure they agree since they have to validate the STAR prior to the MSI review. (DIA validates the STAR, AFISA validates the STA.)

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Several documents are required before update on the STAR begins. The final Mission Need Statement (MNS) is required from the Operating Command or JROC (Joint Requirements Oversight Council). The latest version of the Concept of Operations is required from the Operating Command. And finally, the latest Systems Requirements Description (SRD) is required from the SPO.

b. Exit: A revised document is the exit criteria for this block.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: Input is block B15 - Conduct Requirements Summit; and block A14 - Validate STA(R) (DIA)

b. Outputs: Output is to block D67 - Conduct Operational Roundtable, and block A14 Validate STA(R) (DIA). In addition to these direct input/output blocks refer to block D50 - Develop the STAR.

10. KEY REFERENCES: AFSCR 200-3, Threat Assessment Documentation, Atch 1, 5 April 1985. Describes how to write a threat assessment.

11. IMPLEMENTATION TOOLS: The STAR will use the Threat Environment Documents (TEDs) developed to support the overall MNS to derive their baseline data. All other relative intelligence sources will be used.

12. PLANNING GUIDANCE:

Points Of Contact:

Organization	Commercial	DSN
HQ AFMC/IN	513-257-2869	787-2869
DIA/OTD-AS	203-373-4740	243-4740
AFISA/INAA	703-695-7578	225-7578
ESC/IN	617-377-2377	478-2377
ASC/NAIC/TAIA	513-255-4285	785-4285

a. DURATION: An update to a STAR takes time. Normal estimates for updates are from 1 to 6 months or more.

b. CONSTRAINTS: Data may be limited based on the intelligence data base pertaining to the specific threat and system under consideration.

c. RESOURCES: Normally the same person who was put in charge of developing the STAR should be put in charge of updating it. Numerous (2 to 10) additional personnel will be required to assist in the data collection and report writing.

d. LESSONS LEARNED: The STAR is to be submitted to the reviewing authority to determine the relationship between the mission need and the threat. The potential program should play its requirements against the threat. The STAR can be used to justify program changes, slips, etc. The threat data in the STAR must match that used in any analysis (MNA, MAA, COEA) or the analysis data may be invalid.

e. BEST PRACTICES: Early in the program it is advisable to establish a working group to work the threat assessment; examples are a Threat Steering Group (TSG) or a Threat Working Group (TWG). (See Block D50.) There is no formal requirement to have a TSG or a TWG to update a STA(R). Common sense and best practices indicate that a working group of this nature is helpful. Contact the Product Center as soon as possible if you need a STA(R).

f. TRAPS: It is the project office's responsibility to ensure the STA(R) is initiated. Just because a PMD is issued following a MS 0 review, do not assume that the intelligence community knows about it and initiates the report. It is advisable to contact the DI when the PMD is issued.

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1. ELEMENT: D57, TBS 1.3.2.2 (IFC 93-3)

2. ELEMENT TITLE: Conduct Strategic Roundtable

3. ELEMENT OWNER(S): AFMC/XRMP, ASC/CYX

4. ELEMENT STAKEHOLDER(S): Program/Project Manager (PM), Program Executive Officer (PEO) (if assigned), Designated Activity Commander (DAC), Project Team (Cadre), Roundtable Members

5. REQUIREMENT: AFMC Pamphlet 800-7, 20 Nov 92, Sections A.4 and B.6, define the requirements for the Integrated Acquisition Strategy Process (IASP) and Strategic Roundtable

6. PURPOSE/OBJECTIVES:

a. Purpose: The Strategic Roundtable is to ensure senior experienced management involvement early in formulating the initial program/project acquisition strategy.

b. Objectives: The objective of the Strategic Roundtable is to help the PM formulate a sound, disciplined initial acquisition strategy by giving a program/project the benefit of the members' expert acquisition knowledge and advice. Advice from the Roundtable members will help the PM formulate this preliminary strategy by:

(1) Identifying constraints
(2) Balancing objectives
(3) Setting priorities
(4) Providing timely feedback
(5) Adding vision
(6) Identifying options
(7) Identifying and managing risk

7. DESCRIPTION:

a. At this phase in the overall life of the program/project, Phase 0, Concept Exploration and Definition, is being conducted. What needs to start now is to lay out the initial strategy for conducting the next phase of the program/project (Phase I, Demonstration/Validation). This can be done using the first step in the Integrated Acquisition Strategy Process (IASP), Strategic Roundtable, if the PM and Cognizant Program Decision Authority decide a strategic roundtable is required (D55,). The Cognizant Program Decision Authority is usually either the PEO, DAC or Laboratory Commander. These officials determine the IASP plan, including whether to have a full or a tailored IASP, the duration of the Roundtables and the types of participants, etc. These items are flexible since the IASP guide allows for tailoring of the process. If they believe the current strategic guidelines and decisions are sufficient, the Strategic Roundtable may be bypassed for a Tactical Roundtable entry to the IASP. Or, they may decide to have more than one Strategic Roundtable.

b. The Strategic Roundtable is comprised of the most senior advisors, whose advice is provided to the Manager of a new program/project when he/she has only the operating command requirements and a preliminary system concept. The PM briefs Roundtable I members on the operational requirements and program vision, and the participants focus their experienced perspective on a wide variety of program/project topics. These topics include, but are not limited to:

(1) system relation to national objectives,
(2) threat considerations,
(3) program objectives,

(4) Integrated Weapon System Management (IWSM) issues,
(5) test resources,
(6) financial and contracting issues,
(7) environmental issues and
(8) joint and international issues.

From these discussions the Roundtable members give strategic guidance which will allow the PM to develop a preliminary acquisition strategy for the program/project. This guidance is recorded and included in the minutes of the meeting. The secretariat is responsible for preparation and distribution of the minutes, among other duties. At ASC, the Secretariat is ASC/CYX. Program issues may necessitate that an additional Strategic Roundtable session be held, since, as stated above, the IASP can be tailored. For ACAT ID, IC, or designated programs (major programs), the suggested Roundtable participation consists of the following:

- SAF/AQ
- PEO (if assigned)
- Product Center/CC (DAC)
- Test Center/CC
- AF/TE
- SAF/AQX
- AFOTEC/CC
- AFMC/CC
- Single Manager (System Program/Project, Product Group, Materiel Group manager)
- Logistics Center/CC
- Operating Command/CC
- SAF/AQC
- SAF/AQ (Mission area director)
- AFMC Directors (Selected)
- Other personnel determined suitable for participation by the Cognizant Program Decision Authority or PM (e.g., Chief Executive Officers and Office of the Secretary of Defense key personnel with advisement of SAF/AQ).

For ACAT II, III, or IV programs (less than major programs), the membership would be tailored accordingly. At ASC, for locally conducted Roundtables, the PM and Cognizant Program Decision Authority (usually the ASP chairperson) will determine the attendees for the roundtable.

c. The PM is the major player in this Roundtable process. After the PM has met with the Cognizant Program Decision Authority on how the IASP is going to be conducted, it is up to the PM to prepare for the Strategic Roundtable. The preparation is a shared duty between the PM, Program Director,and PEO/DAC. However, in reality, the PM and his cadre, with the assistance of the secretariat, do the up front work to prepare for the meeting. They do all of the usual things prior to a high level meeting: schedule the meeting, invite the participants, prepare the program and the briefing, take minutes, etc. The programs and briefings for these Roundtables have not been formally structured. Flexibility is built into the process to allow the managers to decide what needs to be discussed and settled at this point in the program/project. For less than major programs, the PM and Cognizant Program Decision Authority can tailor the Roundtable briefing to a level appropriate to the characteristics, phase and issues of the acquisition program. A mandatory agenda item for the last (if more than one) Strategic Roundtable is discussion and determination of members for the Tactical Roundtable (Roundtable II).

d. In addition to new programs/projects which have only the Operating Command requirement and preliminary system concepts, the Roundtable and IASP can also be used prior to major program/project restructures and major program Milestone reviews.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: This activity can start anytime in Phase 0 after it is determined what product center will support the Operating Command determine the requirements and a PM is named. The PM and the Cognizant Program Decision Authority then decide what type of IASP requirements are needed for the program/project, when to conduct the first roundtable and who should be the members (D55).

b. Exit: The Strategic Roundtable activity can be exited when the members have given the PM their expert advice on the initial acquisition strategy for the program/project. The advice given should satisfy the objectives listed above by identifying constraints, balancing program/project objectives, identifying options, setting priorities, identifying and managing risk and adding vision. This information is then transformed by the PM into rough draft of the acquisition strategy report.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Roundtable execution plan information (D55)
(2) Select Preferred Alternative(s) (C25)
(3) Operating command operational information (C19)
(4) Operating command requirements

b. Outputs:

(1) The output of this activity is expert advice to aid the PM in developing the acquisition strategy for the program/project (D58)

(2) The information will also be used as a basis from which to start Roundtable II (Tactical) (D59).

10. KEY REFERENCES: In addition to the AFMC Pamphlet listed in the "Requirements" section above, references include:

a. The Air Force and AFMC FAR Supplements, Parts 5307,
b. AFMC Pamphlet 800-60, Integrated Weapon System Management Guide, 1 Jul 92, and
c. DOD Directive 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, all of which contain guidance on acquisition planning.

11. IMPLEMENTATION TOOLS: AFMCP 800-7, IASP Guide

12. PLANNING GUIDANCE:

a. DURATION: The estimated time for a Strategic Roundtable to be accomplished is anywhere from a two to four hour meeting to one lasting up to two days, depending on the project complexity. Meeting notification should be issued at least 30 days in advance of the meeting and minutes should be distributed within 10 days after the session. If there is only one roundtable, the entire activity could take the better part of two months.

b. CONSTRAINTS:

(1) The availability and scheduling of high level personnel to attend the Roundtable.
(2) Not having a high enough level of experience available to offer advice to the program/project.

(3) Being given a top-down directed schedule that does not allow the PM enough time to think through all issues.

c. RESOURCES: Personnel resources for the Strategic Roundtable are generally not broken out by function, but are as listed in the above "Description."

d. LESSONS LEARNED:

(1) The Roundtables are difficult to set up - trying to schedule the availability of the high level members - and the PM should initiate scheduling them, in conjunction with the Secretariat, ASC/CYX, at least 60 days in advance of the planned meeting.

(2) The program/project needs a manager or director who will make the Roundtable members stick to the decisions that have already been made. They should also encourage members of the Roundtable to offer advice and then follow it.

(3). Since this is a new role for most of the Roundtable members, make sure they know they are now **participants** in the acquisition strategy and not just evaluators.

(4) Whoever facilitates the meeting needs to make sure the discussions stay on the items for that meeting - not decisions that have been made previously or items which should be discussed at the next Roundtable.

(5) ASC/CYX, the ASC office of primary responsibility for IASP, has a lessons learned database which should be checked for additional lessons learned. (DSN 785-7073)

(6) Do not rely solely on the secretariat to take minutes of the meetings. The PM should have a team member take notes. The secretariat is not intimate with details of a specific project/program and may misinterpret discussions or direction.

(7) Strategic Roundtables have been known to address tactical issues without being presented with enough background. For instance, the Strategic Roundtable may decide whether to compete or go sole source. This ties the PM's hands too soon. By being prepared for a "runaway" Strategic Roundtable, their decisions can be based on aspects the PM considers vital.

e. BEST PRACTICES:

(1) Select the members of the Roundtable who will add the most value to the program.

(2) Send out the Roundtable agenda and any point papers, background papers, or program documents 2 to 4 weeks in advance of the Roundtable meeting. This will give the members a chance to be prepared for the items which will be discussed.

(3) Be sure to review the action items at the end of the meeting. This is a great opportunity to task high level participants to deliver needed information (such as documented evidence of need date).

f. TRAPS: The PM should become aware of other/hidden agendas which will be brought out at the meeting. The PM should see if the PEO/DAC is aware of any of the possible topics so they can be prepared.

1. ELEMENT: D58, TBS 1.3.2.3 (IFC 93-3)

2. ELEMENT TITLE: Develop Acquisition Strategy

3. ELEMENT OWNER(S): Program/Project Manager (PM), Program/Project Director, Program Executive Officer (PEO) (if applicable), Designated Activity Commander (DAC)

4. ELEMENT STAKEHOLDER(S): Integrated Acquisition Strategy Process (IASP) Participants, Project Team Members (Cadre), ASC/CYX, AFMC/XRMP

5. REQUIREMENT:

a. DOD Directive 5000.1, Defense Acquisition, 23 Feb 91, Part 1 and

b. DOD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 5, both discuss acquisition strategy policy and procedure.

c. Federal Acquisition Regulation (FAR) Part 34.004, Major Systems Acquisition Strategy, and

d. AFMC FAR Supplement Section 5307, Acquisition Planning.
both contain sections which discuss the requirement for acquisition strategy and planning.

e. AFR 70-14, Acquisition Strategy Panels, discusses what needs to be developed for an ASP.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose is to develop an initial strategy which will start the program/project in the right direction with the aid of early, senior, expert involvement.

b. Objectives: The objective of this element is to use the input and information from the senior experts which were members of the Strategic Roundtable of the IASP, plus other gathered information, and develop the initial program/project acquisition strategy to meet the Operating Command needs within resource constraints.

7. DESCRIPTION:

a. This effort occurs directly after that described in D57. Although this element develops the initial acquisition strategy, developing the entire program/project acquisition strategy is an iterative process and becomes more definitive through each of the successive IASP Roundtables and the Acquisition Strategy Panel. The purpose of developing the initial acquisition strategy is to provide an Air Force and/or DOD-approved roadmap for the PM and his/her team (cadre) to follow in executing their program/project. A sound acquisition strategy is a necessary condition for a successful program/project. A primary goal in developing this initial strategy is to minimize the time and cost of satisfying an identified, validated need consistent with common sense, sound business practice, and the basic acquisition policies. The acquisition strategy should be sufficiently developed to give the PM adequate guidance to achieve the objectives of the program/project and to control risk. The strategy for this early phase of the program/project is derived from the recommendations of the members of IASP Strategic Roundtable I (D57). The strategy should comprise various aspects of the program/project including management, technical, resources, contracting, testing, training, deployment, logistics, support, competition and other elements critical to the success of the program/project. The acquisition strategy should also consider the constraints, objectives, options, priorities, and risks of each of the above elements.

b. This initial acquisition strategy evolves into the first draft of the Acquisition Strategy Report (ASR) and begins the skeleton of the Acquisition Plan (AP). This initial strategy is what will lay the groundwork for the program/project and can make it a success or not. It should always be kept current since it will be used by the members of the Tactical Roundtable of the IASP which will further define the program/project.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The entrance criteria is the guidance given by the IASP Strategic Roundtable senior experts described in D57 after they have discussed all the aspects of the project strategy.

b. Exit: Exit criteria for this element is when the project office (cadre) has prepared the initial acquisition strategy and included it in the first draft of the ASR and the AP.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The inputs to this element are the recommendations made by the Roundtable I participants regarding the various aspects of the program/project.

b. Output: Output includes the initial acquisition strategy which will be used to prepare the first draft of the ASR and AP. This strategy will also be used by IASP Roundtable II (Tactical) members as they further define the program/project acquisition strategy.

10. KEY REFERENCES: AFMC Pamphlet 800-7, Integrated Acquisition Strategy Process Guide, gives guidance on what minimum information should result from Roundtable I to be used in the acquisition strategy.

11. IMPLEMENTATION TOOLS: None Identified.

12. PLANNING GUIDANCE:

a. DURATION: Developing this initial acquisition strategy is program dependent. It could take anywhere from 3 weeks to 3 months.

b. CONSTRAINTS:

(1) Ever changing (acquisition) policy is a constraint when trying to establish an acquisition strategy.

(2) Another aspect programs must take into consideration in their acquisition strategy is statutory requirements. ACAT I programs must plan for competitive prototype development of a major weapon system or subsystem (unless a waiver is granted). Another is the policy of using cost type, in lieu of fixed-price, contracts for development programs. And a recent one is that the ban on Ozone Depleting Chemicals (ODCs) must be taken into account during the strategy formulation.

c. RESOURCES: The PM should have at least one person from each functional area available for the acquisition strategy planning team (cadre).

d. LESSONS LEARNED:

(1) The program/project strategy should not be built around unrealistic constraints directed from higher levels. These constraints should be discussed during the review where roundtable/panel members may be able to change those that are unnecessary or inappropriate.

(2) Roundtable recommendations should not be taken as mandatory. A recommendation which says "look at it again" does not mean it should automatically be changed.

(3) With the proliferation of reviews for a new program/project, building quality into the acquisition strategy will save scrap and rework energy later in the program/project.

(4) ASC/CYX, the ASC IASP office (DSN 785-7073), has initiated a lessons learned data base in addition to the electronic US Air Force Lessons Learned Database which can be reviewed for additional information.

(5) Most successful starts have begun with will defined and firm requirements and adequate resources.

(6) Even though this effort is accomplished after Roundtable I using Strategic Roundtable inputs, it should really begin before the Roundtable so the PM can present pros and cons of various strategies.

(7) Involve industry in all applicable areas of the overall strategy process.

e. BEST PRACTICES:

(1) Get input from senior management (Strategic Roundtable). They are the ones who will give the PM their recommendations from which he/she develops the acquisition strategy. It is important that senior experienced policy and decision makers be on the panel so there is some certainty that recommendations will receive support as the program/project progresses.

(2) Be sure to check the latest changes to acquisition policy. Ensure all statutory requirements, (i.e. prototype competition, fixed-price development contracts approval, ODCs, etc.) have been considered.

(3) Ensure there are enough data available from which to make informed decisions.

f. TRAPS: Acquisition strategy represents a view of the entire program and should not focus on the instant contract activity. Promises made early in an acquisition can become etched in stone.

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1. **ELEMENT:** D59, TBS 1.3.2.4 (IFC 93-3)

2. **ELEMENT TITLE:** Roundtable II (Tactical)-Review Draft ASR

3. **ELEMENT OWNER(S):** AFMC/XRMP

4. **ELEMENT STAKEHOLDER(S):** Project Manager (PM), Program Executive Officer (PEO), Operating Comand.

5. **REQUIREMENT:** AFMC Pamphlet 800-60, 31 Mar 93. This is a guide for implementing the IWSM for all programs managed by AFMC.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose is to build strategy alternatives within timing constraints and to complete development of the Integrated Program Summaries (IPS)/Acquisition Strategy Report (ASR).

b. Objectives: Objectives of this roundtable are as follows:

(1) Summarize where the project is, versus where it should be.

(2) Describe where the program is going, and how it will get there.

(3) Identify project risk areas and plans for managing risk.

(4) Provide the basis for establishing explicit project cost, schedule, and performance objectives.

(5) Roundtable II will give the project a systematic approach to completing a successful ASP with limited manpower of today's limited resource environment.

7. **DESCRIPTION:**

a. The Tactical Roundtable assists the Project Manager in preparing the acquisition strategy for presentation to the Acquisition Strategy Panel (ASP). Discussion topics at this Roundtable are selected by the cognizant decision authority and the project team to facilitate building strategy, alternatives, and timing, and to complete development of functional area strategy. The project team decides, if Roundtable II is necessary and, in rare occasions, may go directly to the ASP.

b. Develop Acquisition Strategy (D58) includes the initial acquisition strategy which will be used to prepare the first draft of the ASR. This strategy will be used by IASP Roundtable II (Tactical) members as they further define the program/project acquisition strategy.

c. Conduct Requirements Summit (B15) considers operational concepts, the projected threat, and the capabilities of other supporting systems to ensure the technical solutions under development meet the user's objectives. The requirements review and scrub at this Summit has a greater impact on the success of the program than any future Summit. The Results are fed into Roundtable II to help develop project strategy.

d. The Outputs will be the project strategy which will be used at the ASP. This strategy is Outlined in the "Acquisition Strategy Report and Draft Milestone I Documents & Functional Plans" (D60).

8. ENTRANCE/EXIT CRITERIA:

Entrance: The Tactical Roundtable is convened soon after the project office prepares the first draft of the Integrated Program Summary or Acquisition Strategy Report. The Project Manager (PM) should send out an agenda and meeting notification 30 days before Roundtable II. At the conclusion of the first Roundtable, "skeletons" of detailed functional plans will be prepared by the project office. With these reports, the Project Manager will develop, with the participants chosen by Roundtable I, the strategy for each functional area during Roundtable II.

Exit: At the end of Roundtable II, the PM will document, coordinate, and distribute the minutes within 10 working days of the meeting.

9. KEY INPUTS AND OUTPUTS:

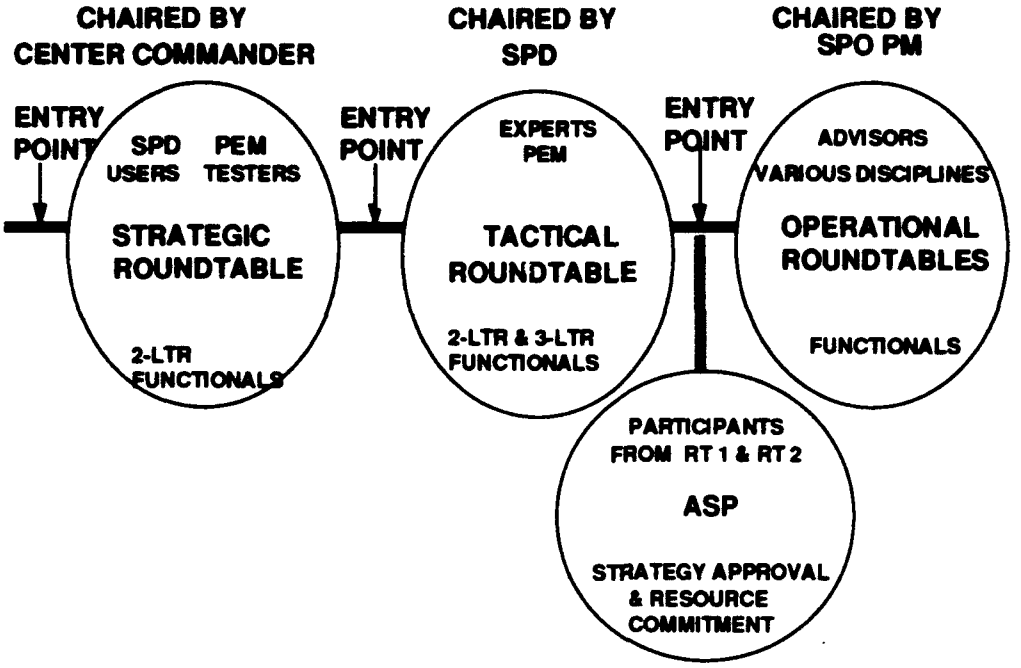
a. Input:

(1) Develop Acquisition Strategy (D58)
- (a) Minutes from Roundtable I, and
- (b) The regulations outlined in requirements above.
- (c) Project status
- (d) Look at risk areas of the project.
- (e) Also look at the project cost schedule and performance objectives.

(2) Conduct Requirements Summit (B15)
- (a) Looks at user's requirements
- (b) ensure threat assessment is current with user's needs

(3) Output: The outputs will be the project strategy which will be used at the ASP. This strategy is outlined in the Acquisition Strategy Report and Draft Milestone I Documents & Functional Plans (D60).

ASC IMPLEMENTATION



10. KEY REFERENCES:

a. Air Force Regulation 70-14, Acquisition Strategy Panels, 14 Aug 92. This document discusses acquisition strategy with some reference to Roundtable II.

b. AFMC Pamphlet 800-7, 20 Nov 92, paragraph 7, pg 5, defines the requirements for the Integrated Acquisition Strategy Process (IASP) and Tactical Roundtable.

c. Air Force Federal Acquisition Regulation (FAR) Supplement, Part 5307, 1 Jan 92. This document gives guidance on acquisition planning.

d. HQ AFMC/XRM Ltr, 6 Aug 92, Draft AFMC IASP Guide, Page 2, Para 2.C. Gives guidance on what should be accomplished in the roundtable process.

e. No number, Acquisition Strategy Formulation, Mar 92, covered in most of document. This has good back ground information on the roundtable process.

11. IMPLEMENTATION TOOLS: Air Force Acquisition Model (AFAM)

12. PLANNING GUIDANCE:

a. DURATION: Depending on the complexity, send notification to all participants 30 to 60 days prior to meeting date. For small projects it will be a 1 day meeting. For more complicated projects, the process could require as many as 10 meetings during a 2 month duration, and for major projects such as an F-22, it could take as long as 3 years to prepare and 3 months of meetings for the formal roundtables.

b. CONSTRAINTS: Some of the members of Roundtable I need to be members of Roundtable II to provide continuity. There is also the problem of too few people doing all the work, but some of this shortage of personnel should be helped by using the roundtables rather than going directly to the ASP. During the previous early acquisitions, before the roundtable process was conceived, the strategy was developed all at once during the ASP. By not funneling the strategy in incremental steps through the Roundtable process, many revisions are needed which used up great amounts of manpower needlessly. Now with the Roundtable process, strategy will be developed incrementally and more efficiently.

c. RESOURCES: Need senior members from the Operating Command and applicable functional areas. A project team is needed to develop project strategy. Amount of time varies depending on complexity of project. An SAF/AQ representative from Roundtable I should be at Roundtable II to provide continuity. This representative should be picked during Roundtable I.

d. LESSONS LEARNED: The functional area strategy should not be developed before the review. Only skeletons of the strategy should be developed. CYX is developing a lessons learned data base from their experiences as roundtables are completed.

e. BEST PRACTICES:

(1) Some participants of Roundtable I must be the same for Roundtable II. Identify members which will be attending Roundtable II at Roundtable I.

(2) Keep in mind this is not a formalized project review and the PM should not go in to it with a developed functional area strategy. The functional area strategy must be developed during the review.

f. TRAPS: Do not develop the detailed functional strategy before Roundtable II. It should be developed during this meeting. It is not wise to develop strategy which does not fit current policy. For example: don't go in with a recommended 3 level maintenance program with a 2 level policy!

1. **ELEMENT:** D60, TBS 1.3.2.5/1.3.2.6 (IFC 93-3)

2. **ELEMENT TITLE:** Complete ASR and Draft MS I Documents and Functional Plans

3. **ELEMENT OWNER(S):** Project Manager

4. **ELEMENT STAKEHOLDER(S):** HQ USAF/XOR , OSD/PA&E, SAF/AQ, SAE, Service Secretary, Operating Command, Implementing Command, Aeronautical Systems Center (ASC) Functional Organizations, ASC/YX, ASC/CYX, HQ AFMC/XRMP.

5. **REQUIREMENT:**

a. DoD Directive 5000.1, Defense Acquisition, 23 Feb 91, Part 1. This regulation provides information concerning acquisition strategies and program plans.

b. DoD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part 2 and Part 5 . This instruction provides information on the Milestone (MS) review documentation concept, risk management, and acquisition category MS documentation requirements.

6. **PURPOSE/OBJECTIVE(S):**

a. Purpose: The primary means for the project team to provide the Milestone Decision Authority (MDA) with the information needed to make a Milestone decision.

b. Objective: To ensure the draft Acquisition Strategy Report (ASR) is completed based upon guidance provided by the Tactical Roundtable II (D59) and ready for Acquisition Strategy Panel review and possible approval (D61) so that the Acquisition Plan may be completed (D66). To ensure the draft MS I documents are ready for review by the Operational Roundtable III (D67).

7. **DESCRIPTION:**

a. In every acquisition program there is an overarching strategy that guides the project called the acquisition strategy. This acquisition strategy is contained in detailed program plans that the project team uses to manage the project. Completion of a draft ASR is based upon guidance provided by the Tactical Roundtable II (D59). This Roundtable assists the project manager in preparing the acquisition strategy for presentation to the Acquisition Strategy Panel (D61) and is reflected in an initial draft Acquisition Plan (AP) (D66). The AP is used to integrate the acquisition strategy in a single comprehensive, coordinated plan to fulfill the government's needs. All pertinent MS documents and functional plans are initially drafted prior to the Operational Roundtable III (D67). These plans are brought to the Operational Roundtable to ensure agreement between the Rountable participants of each document's content and harmony among the documents as a whole. Based upon guidance from Roundtable III, the draft MS documents and functional plans are completed and finalized (D68). The MDA is provided with a combination of the plans containing essential information needed to make decisions and to comply with statutory requirements. Finally, during the execution of the project in the phase between MS decision points, the project team provides periodic assessments of the status of the project accomplishments against program plans to the MDA.

b. The Operating MAJCOM/CC uses the results of the Concept Exploration (CE) Studies and the COEA to justify and select a preferred alternative. Working with the acquisition community, a briefing is prepared to gain CSAF and MDA concept demonstration approval. After establishing an Air Force position, the user, implementer, and the PEO (or Service Acquisition Executive (SAE) for smaller programs) prepare the documents required for the MS I review (Concept Demonstration Approval). The PMD (B10) should have assigned tasking for the applicable documents. The number and types of

documents and amount of detail will vary by the ACAT level. A Defense Acquisition Board (DAB) program requires approximately 10 major documents. SAF/AQ approves acquisition program documents before sending them to the Joint Requirements Oversight Council (JROC) and the DAB. The HQ USAF-approved Operational Requirements Document (ORD) is the basis for all follow-on program documentation.

c. Documentation must be prepared prior to an Air Force Systems Acquisition Review Council (AFSARC) (B9)(B24). The AFSARC process is for AFAE review of ACAT I programs, any joint program for which the Air Force is lead, and ACAT II-IV programs as determined by the Secretary of the Air Force (SAF) or the Air Force Acquisition Executive (AFAE). The AFSARC reviews ACAT I programs prior to a MS decision or prior to program review by the SAE. It is the Air Force review process which reviews all program documentation prior to going to the DAB. The AFSARC functions as the DAB for all Air Force programs that are less than ACAT I.

d. Acquisition strategies and program plans shall be tailored to accomplish established program objectives and to control risk. The documentation is limited to that required to support the purpose of the MS review and to that required by statute. The scope and formality of the documentation required to support the purpose of the review depends on the program Acquisition Category(ACAT).

e. Finalize ASR: The ASR is Annex C of the Integrated Program Summary (IPS). It describes the acquisition approach to include streamlining, sources, competition, and contract types throughout the period from the beginning of Phase I, Demonstration and Validation, through the end of production. The final draft ASR is prepared by the project team based upon inputs from Roundtable II (Tactical) (D59) and the ASP (D61). The Roundtable II builds strategy alternatives with timing constraints to complete development of the ASR. They assist the project team in preparing the acquisition strategy for presentation to the acquisition strategy panel (ASP). The ASP reviews, improves when necessary and approves the program strategy. MDAs will approve the acquisition strategy for acquisition category I programs (D58, D59, A15).

Table - Documents Required for Milestone I Decision Review

DOCUMENTS REQUIRED FOR MS I DECISION REVIEW

DOCUMENT (format in DoD 5000.2-M)	***ACAT***			
	I	II	III	IV
Operational Requirements Document (ORD)	X	X	X	X
System Threat Assessment Report (STAR)	X			
System Threat Assessment (STA)		X	X	X
Integrated Program Summary (IPS)	X	X	X	X
Program Life Cycle Cost Estimate	X	X	X	X
Acquisition Program Baseline (APB)	X	X	X	X
Test & Evaluation Master Plan (TEMP)	X	X	X	X
Component Cost Analysis (CCA)	X	X	X	X
Cost & Operational Effectiveness Analysis (COEA)	X	X	X	X
Defense Intelligence Agency Report (DIA)	O			
Intelligence Report		O	O	
Joint Requirements Oversight Council (JROC) Report	O			
Integrated Program Assessment (IPA)	O	O	O	O
Independent Cost Estimate (ICE) Report	O			
Acquisition Decision Memorandum (ADM)	O	O	O	O

X: Prepared by Military Dept/PM O: Prepared by OSD Staff

f. Narrative explanation of MS I Documents:

(1) Operational Requirements Document (ORD). Identifies minimum acceptable performance requirements to satisfy the operational need; also includes performance objectives that would provide operationally meaningful increases in capability. Prepared by user or user's representative. DoD 5000.2M, Part 3 contains preparation procedures and format (C19 and C26).

(2) System Threat Assessment Report (STAR). Documents the Military Department's threat assessment at the system level. Prepared by Component Intelligence Command/Agency. National Air Intelligence Center (NAIC) writes the STAR for ASC. DoD 5000.2M, Part 5 contains preparation procedures and format (D50, D56).

(3) System Threat Assessment (STA). Documents the military department's threat assessment at the system level. Prepared by the Air Force Intelligence Command/Agency. For procedures and format requirements, see DoD 5000.2M, Part 5, as STAs are formatted like the STARs (B11, D50).

(4) Integrated Program Summary (IPS). The IPS will be addressed more thoroughly here, since it is the primary decision document used to facilitate top-level acquisition MS decision making and is not contained in other data sheets. The purpose of the IPS is to provide a succinct integrated picture of the program status for use by the MDA, supporting, and review forums. It highlights the status of critical areas and plans for future acquisition. At MS I, the IPS will summarize the results of Phase 0, Concept Exploration and Definition. When writing the IPS, the project team needs to identify and provide the following information:

(a) The most promising concept(s) to be carried into Phase I, Demonstration and Validation, for demonstration and further development, and the reasons for elimination of alternative concepts.

(b) The risk reduction efforts to be accomplished during Phase I.

(c) The trade-off decisions to be made for MS I, and recommended to be made for MS II, by the MDA.

(d) The design alternatives and trade-offs to be evaluated during Phase I.

(e) A summary of the program life-cycle cost estimate, independent cost estimate, affordability assessment and proposed concept baseline.

(f) The DoD Component's proposed project acquisition strategy and any proposed waivers.

(g) The Acquisition Strategy Report (ASR) discusses the basic acquisition strategy being pursued. As part of the IPS, it summarizes the entire planned program structure from Demonstration and Validation through Production and Deployment. Requests for Proposals (RFPs) for the Dem/Val phase may not be released until the MDA has approved the ASR. The ASR is not to be confused with the Acquisition Plan which describes the acquisition strategy only for the current phase. The ASR should discuss the transition of critical technologies in technology demonstration programs to prototypes and engineering development models including line proofing of low rate initial production, plans for reducing risk, NonDevelopmental Items (NDIs), evlutionary acquisition, and preplanned product improvements in the context of the operational requirements and the management approach to the acquisition.

(h) The IPS is a statutory imposed requirement prepared by the project manager. The final IPS approved by the SAE will be submitted to the DAB Executive Secretary no later than 10 working days prior to the DAB Committee review.

(i) The IPS concept will be used by the DoD Component MDA for ACAT IC, II, III and IV programs; however, the documentation content should be appropriately tailored for ACAT II, III and IV programs. DoD 5000.2M, Part 4, contains preparation procedures and format (D58).

(5) Program Life Cycle Cost Estimate. Documents the project team's life cycle cost estimate of the project. Used by the MDA along with the Component Cost Analysis (CCA) to determine the acquisition program baseline cost estimate and affordability of the program. This plan is prepared by the project manager. DoD 5000.2M, Part 15 contains preparation procedures and format (D71).

(6) Acquisition Program Baseline Agreement (APB). Documents the cost, schedule, and performance baseline agreement between the MDA and project team. Prepared by the the project team. DoD 5000.2M, Part 14, contains preparation procedures and format (D51).

(7) Test and Evaluation Master Plan (TEMP). Lists the critical developmental test and operational test objectives and outlines the testing and evaluation approach and methodology. Prepared by the project team. DoD 5000.2M, Part 7 contains preparation procedures and format (D54).

(8) Component Cost Analysis (CCA). Documents the Air Force Independent Life-Cycle Cost Estimate. Prepared by the Air Force (B21). DoD 5000.2M, Part 15 contains preparation procedures and format

(9) Cost and Operational Effectiveness Analysis (COEA). Analyzes the comparative cost-effectiveness of alternatives at MS I and II. At MS III and IV it is updated. Prepared by Independent Analysis Activity. DoD 5000.2M, Part 8 and AFMCP 73-1 contains preparation procedures and format (C21, C25, D48).

(10) Defense Intelligence Agency (DIA) Intelligence Report. Validates the basis for the threat in the Mission Need Statement (MNS) and the STAR. Prepared by the DIA for ACAT ID programs (A5).

(11) Intelligence Report. Validates the basis for the threat in the MNS and the STA. Prepared by the Air Force Intelligence Command/Agency (B6).

(12) Joint Requirements Oversight Council (JROC) Assessment. Verifies the need and confirms that the proposed performance objectives and thresholds to be contained in the program baseline satisfy the operational need. Prepared by the JROC (A16).

(13) Integrated Program Assessment (IPA). Summarizes the independent assessment of the project. Identifies critical areas, issues and recommendations for the MDA. Uses the same format as the IPS. Prepared by the Defense Acquisition Board (DAB) committee staff specialist for the committee chairman's signature. It represents committee findings for DAB designated programs or documents the results of the committee review (A21).

(14) Independent Cost Estimate (ICE) Report. Documents the OSD Cost Analysis Improvement Group (CAIG) Assessment of the Air Force's Independent life-cycle cost estimate (CCA) and provides the OSD CAIG cost position on ACAT ID and IC programs. Prepared at the OSD level by Program Analysis and Evaluation (PA&E) (A17).

(15) Acquisition Decision Memorandum (ADM). Provides the decisions of the MDA (including approval of the ASR if not approved prior to the MS) and the exit criteria for the next phase of the project. Prepared by DAB Executive Secretary for ACAT ID programs. Prepared by AFAE's Staff Executive Secretary for ACAT 1C programs (A22).

g. Functional Plans. In addition to the documents required for MS reviews, there are a number of functional plans used by the project team during the execution of each acquisition phase. Some of these documents are not reviewed directly by the MDA, but may be used as supporting material. They include those documents used by the project office to actually execute the project. Scope and formality of these plans vary by project phase; formats for some may be specified by the Air Force.

Table 2 - Milestone I Functional Plans

FUNCTIONAL PLANS
Integrated Weapon System Master Plan (IWSMP)
System Engineering Master Plan (SEMP)
Systems Engineering Master Schedule (SEMS)
Risk Management Plan (RMP)
Program Protection Plan (PPP)
Integrated Logistics Support Plan (ILSP)
Pollution Prevention Action Plan (PPAP)
Nuclear Certification Plan (NCP) (if necessary)
Cost Analysis Requirements Description (CARD)
Program Management Plan (PMP) (May be used on non-major programs, generally not used on major programs)
System Security Master Plan (SSMP)
Computer Resources Life Cycle Management Plan (CRLCMP)

(1) Integrated Weapon System Master Plan (IWSMP). This plan addresses both the acquisition phase and the evolution and sustainment phase of a weapon system. The IWSMP will define the weapon system's evolution throughout the system life cycle. It will be agreed to by the developer/supporter and the customer and will allow coordinated budgeting and tradeoffs to be made with full knowledge of what is forecasted for the future. IWSMP is required by AFR 400-3, Weapon System Program Management, Jun 89. It has been recommended that the IWSMP be completed at MS I and should continue throughout the life of the project. POC is AFMC/XRM, DSN 787-7596.

(2) Systems Engineering Management Plan (SEMP). A concise top level technical management plan for the integration of all systems engineering activities. For plan development see DODI 5000.2, Part 6; MIL-STD-499B (draft), Systems Engineering, 6 May 92 (D20B, D55).

(3) Systems Engineering Master Schedule (SEMS). A top-level process control and progress measurement tool to ensure completion of identified accomplishments. The SEMS accomplishments, with their supporting criteria, shall include those necessary to provide critical technical inputs and decision data into engineering (technical) and project decision points, demonstrations, reviews and other identified events. For SEMS development see MIL-STD-499B (draft), Systems Engineering, 6 May 92 (D20B, D55).

(4) Risk Management Plan (RMP). Defines how risk analysis will be performed. The purpose of the risk analysis is to anticipate the significant things that could go wrong, develop contingency plans in case they do go wrong, and estimate the cost and schedule impact for each area of risk. For plan development see DoD Directive 5000.1, Defense Acquisition, Part 1 (D37B, D55).

(5) Program Protection Plan (PPP). Identifies essential project information, technology and systems to be protected. It creates a management plan which outlines the measures that need to be taken by the project manager to protect the system throughout the acquisition process. For plan development see DoD Instruction 5000.2, Part 5.

(6) Integrated Logistics Support Plan (ILSP). Describes the concepts, resource requirements, tasks, schedules, and subordinate plans associated with each Integrated Logistics Support

(ILS) element. The ILS effort encompasses the following elements: maintenance planning; manpower and personnel; supply support; support equipment; technical data; training and training support; computer resources support; facilities; packaging, handling, storage, and transportation; design interface. For plan development see AFLC/AFSC Pamphlet 800-34, Acquisition Logistics Management, chapter 10, 13 Apr 87; AFR 800-8, Integrated Logistics Support (ILS Program, Atch 5, Jun 86 (C19, D20B).

(7) Pollution Prevention Action Plan (PPAP). This is a new plan to be incorporated into system milestones. The plans major objectives are to show how the Air Force will:

- reduce the use of hazardous materials in new and existing weapon systems
- reduce the use of hazardous materials and waste generation at installations and Government Owned Contractor Operated (GOCO) facilities
- acquire state of the art pollution prevention technologies
- apply new technology to pollution prevention, from outside or from Air Force research
- establish investment strategy to fund the pollution prevention program.

The policy for the Air Force ban on purchases of Ozone Depleting Chemicals (ODCs) implements the National Defense Authorization Act for Fiscal Year 1993, Title III, Section 326 (Public Law 102-484 policy on ODCs). Effective 1 January 93 the Air Force instituted policy on the purchase, use, and management of controlled ODCs. The DFARS and AFFARS on implementing Ozone Depleting Substance (ODS) restrictions and purchase bans became official through Air Force Acquisition Circular (AFAC) 92-29, 27 May 93. The most serious implication to the SPOs from these regulations are the following requirements: Original contracts in excess of $10 million in value, with modifications or extensions extending 1 year, initiated after 1 Jun 93 must be evaluated for the elimination of ODS. The evaluation must be carried out within 60 days. No further mod/ext may be made until the evaluation is complete. In the absence of additional guidance, many programs may slip while meeting these requirements. ASC/EM has highlighted these SPO concerns to the AFMC Pollution Prevention IPT. Pollution prevention is to be institutionalized into acquisition by the end of 1994. (See Air Force Chief of Staff memo , Air Force Ban on Purchases of Ozone Depleting Chemicals (ODCs) - ACTION MEMORANDUM, dated 7 Jan 93 and ASC Environmental Protection Committee briefing, 15 Jan 93.

(8) Nuclear Certification Plan (NCP) (if necessary). This plan provides overall guidance and policy concerning the nuclear certification aspects of the project (if applicable). It identifies nuclear certification and safety activities that must be accomplished and identifies major contributors and/or responsibilites of the participants in the nuclear certification and safety projects. It serves as an integrated, cohesive plan to accomplish the required nuclear certification tasks. For plan procedures see AFR 122-1, The Air Force Nuclear Weapon Surety Program and ASC/ENS Nuclear Certification Handbook, Feb 87).

(9) Cost Analysis Requirements Description (CARD). The CARD describes the complete program and will be used as the basis on which the project office and Air Force cost analysis teams prepare the program life-cycle cost estimates. For plan procedures see DoD 5000.4-M (D52).

(10) The Program Management Plan (PMP). Certain non-major programs may use a PMP to replace all the functional plans, but the PMP is generally not used on major programs. This plan shows the integrated time-phased tasks and resources required to accomplish each task specified in the PMD.

(11) System Security Master Plan (SSMP). Outlines the procedures and actions required to design, develop, manufacture, and deploy a secure weapon system that will inhibit or prevent overt or covert ground threat action. This plan may be tailored into the SEMP. For plan procedures see MIL-STD-1785 .

(12) Computer Resources Life Cycle Management Plan (CRLCMP). The management approach, decisions, and plans associated with computer resources is documented in the CRLCMP. Computer resources include hardware, firmware, software, services, support services, supplies, and spare parts. This plan is developed in conjuction with the ILSP to ensure software supportability is

properly addressed during development. The plans will cross reference each other. For plan procedures see DoD 5000.2, Part 6.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: This element begins with the completion of the Tactical Roundtable II (D59).

b. Exit: Completion of the final draft ASR and development of the draft MS Documents and Functional Plans containing the information that will be needed to make an MS decision is the exit criteria for this element. Using the results of this element the project team proceeds to review and approval of the Acquisition Strategy (ASP)(D61). The ASP approves, or recommends approval of the acquisition strategy and commitment of resources to the appropriate decision authority (D61). If the ASP has changes to the documents, the project team needs to reenter this element (D66). The project team continues developing the AP and reconciling it with the ASR.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The Program Management Directive (PMD) (B10). The PMD directs development of the COEA and the ORD and identifies the required documentation and schedule considerations for the next MS. The key inputs for the final IPS/ASR are the MNS; the results of the Concept Exploration phase, the ORD, and the IASP (D57, D59, D61, and D67).

b. Outputs: The documentation/information needed by the MDA to determine if the results of Phase 0 warrant establishing a new acquisition program and approval to proceed with the Demonstration and Validation phase.

10. KEY REFERENCES:

a. DoD 5000.2-M, Defense Acquisition Management and Documentation Reports, 23 Feb 91. This manual contains procedures and formats to be used to prepare MS documentation.

b. AF Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, para 1.4. This instruction provides information on Concept Studies, COEA, and MS Documentation.

c. HQ Operating Instruction 800-2 (draft), Policy and Guidance for Preparing Program Management Directives, 1 Jan 93, para. IV. This section contains information on documents such as the MNS, ORD, COEA, TEMP, STAR, PPP, APB.

d. AFMC Pamphlet 800-7, Integrated Acquisition Strategy Process, 20 Nov 92, Section A. This pamphlet contains information about the Operational Roundtable.

e. ASR Guide, DSMC, July 1984. This guide provides lessons learned for the approval process.

11. IMPLEMENTATION TOOLS:

a. In document preparation, software tools, such as some of the Defense Systems Management College (DSMC) models, are helpful for certain specialized tasks. The competition evaluation module is used in evaluating alternative acquisition strategies.

b. DSMC's procurement strategy model (PSM) works by comparing your proposed project as you compare it to past projects stored in a data base. It eliminates the less attractive strategies and produces a short list of recommended strategies that have the best chance for meeting the Initial

Operating Capability (IOC) and the project's cost constraints. The model also allows the project team to examine the effects of changes to the parameters that were entered to describe the project. For more information on this software package, contact PMSS Directorate/DRI-S, Ft Belvoir, VA 22060-5426, DSN 354-4795/5783.

c. The Consolidated Acquisition Reporting System (CARS) provides an automated tool for the preparation of the Selected Acquisition Reports, Defense Acquisition Executive Summary and the Acquisition Program Baseline which are all used to support the MS Decision Review Process.

d. Systems 200, Acquisition Planning and Analysis, is a course offered through The Air Force Institute of Technology (AFIT). This course has a Program Documentation Module which provides an overview of the regulatory requirements for completing the ASR.

e. A Computer Based Training (CBT) software package is available from ASC/ALL, 513-257-1995, for use in developing the !LSP.

f. A networking tool such as a "timeline."

12. PLANNING GUIDANCE:

a. **DURATION:**

(1) MS documents may require anywhere from 8 weeks to 8 months to prepare from the time of tasking. Factors such as complexity and coordination cycle or level impact the duration time. Draft MS documents are due to OSD 59 days prior to the DAB. The MS documentation review is 44 days prior to the DAB and final documents are due to OSD 24 days before the DAB. The final documents for AFSARC reviews must be finalized by the date of the AFSARC.

(2) At least 2 months is required to prepare the draft IPS/ASR for the documentation review. Much of the stand-alone documentation is prepared in parallel. The final IPS/ASR is submitted to the Defense Acquisition Board (DAB) Executive Secretary NLT 10 working days prior to the DAB Committee review.

b. **CONSTRAINTS:**

(1) Restrictions regarding the time by which all documents must be completed.
(2) Restrictions on the availability of needed project staff.
(3) Restrictions on the availability of equipment or facilities needed to complete the documentation package.
(4) Identification of other organizations/individuals with which you must interface.
(5) Restrictions regarding the proper format in which the documents must be produced.

c. **RESOURCES:** The Project Team needs resources in the following categories:

(1) Strategy and Documents Development Team (Technical Manager, Business Manager, Logistician, Contracting Officer, User Representative and a representative from HQ USAF/XOR to address requirements, a representative from the Test community, Special Consultants, Communicator, Administrative Personnel).

(2) Two man months (typically) is required to prepare the IPS/ASR and usually in parallel with the remaining documentation.

d. **LESSONS LEARNED:** The following are from the DSMC ASR Guide:

(1) Project teams should thoroughly address risk assessment. This is one of the most important review/approval considerations.

(2) Project teams should ensure that the acquisition strategy is kept current by using a knowledgeable, qualified person to maintain it and by using modern word processing equipment to enable rapid updating.

(3) Project teams should stay in constant contact with Points of Contact (POC) in OSD, Air Staff, Using Command to coordinate review and approval schedules for all documents.

(4) Project teams should maintain control of draft document changes to ensure consistency of information.

(5) The MS planning meeting is critical. It establishes groundrules and delineates what must be addressed.

e. **BEST PRACTICES:**

(1) In developing the required documentation, project teams/initiators should keep them as brief as possible to depict relevant information, without adding levels of detail exceeding that required. For nonmajor (ACAT II through IV) programs, documents such as the ORD and COEA may be tailored to avoid an unnecessary burden. The designated MDA will direct the tailoring of documentation and, if proper, waive specific documentation.

(2) Project teams must collaborate tailoring with PEO/DAC; provide a continuity of advisors/approvers; have strategy before plans; surround himself/herself with functional experts, and encourage disciplined team building/consensus.

(3) When preparing MS documents, project teams must review and affirm user-stated needs, and the adequacy of project development efforts to satisfy those needs in a timely, cost-effective manner.

(4) The Project teams must maintain close liaison with other agencies to ensure their preparation activities do not impede the projects planned dates.

(5) Acquisition strategy is often driven by schedule. The Request for Proposal (RFP) may be issued and sources selected for the next phase before all the data is in from Phase 0. This can happen in any phase where source selection decisions may be made without adequate performance data. Advocate realism.

(6) Point of Contact for MS documents is SAF/AQXA, DSN 225-5973.

f. **TRAPS:**

(1) The ASR is not to be confused with the Acquisition Plan which describes the acquisition strategy only for the current phase.

(2) Constrain plan writers - do not permit each function or discipline to create its own ground rules and generate unconstrained plans. The end result of this kind of approach is a mass of unrelated data, which at some point (usually critical to the schedule) has to be restored and repackaged.

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1. **ELEMENT:** D61, TBS 1.3.2.7 (IFC 93-3)

2. **ELEMENT TITLE:** Acquisition Strategy Panel (ASP) Review and Approval of Acquisition Strategy

3. **ELEMENT OWNER(S):** ASC/PK, ASC/CY

4. **ELEMENT STAKEHOLDER(S):** ASP membership should be tailored to the specific acquisition depending on the nature of the project. Mandatory core members include representatives from the requirements and using activities, legal, engineering, comptroller, and contracting communities. Representatives from test and evaluation, logistics, manufacturing, quality assurance, competition advocate, base environmental, safety, bioenvironmental and medical(occupational health), or other personnel should be included, if appropriate, considering the given acquisition.

5. **REQUIREMENT:** DODI 5000.2, "Defense Acquisition Management Policies and Procedures", Part 11, Section C, dated 23 Feb 91; Air Force Regulation 70-14 dated 14 Aug 92, "Acquisition Strategy Panels."

6. **PURPOSE/OBJECTIVES:**

a. Purpose: An ASP is a standing or Ad Hoc panel of functional experts whose purpose is to serve in an advisory capacity by reviewing and recommending acquisition strategies for a specific product or service.

b. Objective: The objective of the panel's review is to assure there is a systematic and disciplined approach toward achieving an economical, efficient, and effective acquisition. The ASP is convened to review the integrated strategy for realism, flexibility, risk, responsiveness to the user's needs, balance, and executability.

7. **DESCRIPTION:** An ASP should be requested by the System Project Director (SPD), Project Director (PD), or Project Manager (PM) as early as possible.

a The acquisition strategy is normally briefed by the Project Director and the Contracting Officer to representative members of the first two Roundtables, usually a forum of Air Force Material Command's (AFMC's) most senior and knowledgeable acquisition personnel. The ASP will be chaired by the Program Executive Officer and/or the Designated Acquisition Commander (DAC). This panel provides corporate input into the program acquisition strategy. It is essential that the experience and viewpoints of AFMC's acquisition managers be applied in a systematic process during formulation and selection of program acquisition strategies. The ASP review process helps to ensure such expertise is incorporated into the acquisition strategy. The results of an ASP are documented recommendations by the panel on how to proceed with the acquisition. The acquisition strategy is then adjusted and documented in the Acquisition Plan by the Contracting Officer.

b. An ASP will be conducted for each AFMC program that requires an Acquisition Plan, except for:

(1) 6.1 and 6.2 funded programs (Budget Program Activity Codes).
(2) recurring requirements for special programs under AFR 800-29 where a class Justification and Approval has been approved.
(3) certain replenishment spare parts.
(4) certain repetitively procured items or services(see AFMCR 800-25).

8. **ENTRANCE/ EXIT CRITERIA:**

a. Entrance: The ASP is held after the Roundtable II(Tactical Roundtable, if applicable, Element D59) and before Roundtable III(Operational Roundtable, Element D67).

b. Exit: Exit criteria for the ASP is an approved set of minutes which sets forth the panel's acquisition strategy recommendations.

9. **KEY INPUTS AND OUTPUTS:**

a. Inputs: Functional recommendations, Operational Requirements Document, Program Management Directive, and Project Director's draft acquisition strategy.

b. Outputs: Acquisition Strategy Panel minutes and Acquisition Strategy Panel recommendations .

10. **KEY REFERENCES:**

a. AFMC pamphlet 800-7, Integrated Acquisition Strategy Process Guide, dated 20 Nov 92.
b. Air Force Acquisition Model, (AFAM) dated 3 Jul 1992.
c. A Schedule For Acquisition Planning: Initial Acquisition and Strategy Development Through Source Selection (ASC/CYX), dated Dec 92.

d. ASC Request For Proposal and Source Selection Lessons Learned Pamphlet (ASC/CYX) dated Jan 1993

11. **IMPLEMENTATION TOOLS:** The regulations and guidance listed above.

12. **PLANNING GUIDE:**

a. **DURATION:** The ASP meeting will typically last from a few hours to all day, depending on the complexity of the program and issues involved. Additional meetings may be necessary to resolve any open items/issues.

b. **CONSTRAINTS:** Availability of appropriate panel members. Trying to arrange acceptable dates for senior officials is often very difficult.

c. **RESOURCES:** Need members from all functional areas and the Project Manager to develop the acquisition strategy to be briefed to the panel. Number of man-hours to develop the acquisition strategy depends on the complexity of the program and may range from 100-500 man-hours per functional area. The entire effort may take months. The Project Manager or Contracting Officer schedules the actual briefing/review of the acquisition strategy and the panel review normally involves 2-24 man-hours per functional area.

d. **LESSONS LEARNED:** We should guard against relying too much on reviews and too little upon building in quality during preparation. That initial quality must come from having adequate numbers of qualified functional personnel supporting the program office. With the proliferation of reviews--ASP, Solicitation Review Board(SRB), Source Selection Management Group(SSMG), review relooks, procurement committee review, etc.--there is a real possibility that more energy is applied to reviewing the document than was applied in the original preparation.

e. **BEST PRACTICES**:

(1) For the purposes of a more efficient and thorough review of the acquisition strategy, provide a draft copy of the Acquisition Plan and RFP a week in advance to members of the panel. Questions may then be addressed and answered prior to the ASP meeting, allowing for a less cumbersome and lengthy review process.

(2) Selected members of the Strategic and Tactical roundtables should be included in the Acquisition Strategy Panel to ensure a consistent and cohesive acquisition team through final approval of the acquisition strategy.

(3) Project Managers may be able to help change or convince senior leaders to change those unrealistic constraints that are unnecessary and/or inappropriate.

(4) Use this opportunity to ask for waivers and delegations since the right people will be in the room. Document the minutes to show approval.

f. **TRAPS:** If an ASP has agreed to a strategy and the Program Manager later receives additional information that would change previous decisions/recommendations made by the ASP, the Program Manager should coordinate the new information with the ASP Chairperson and make appropriate revisions to the acquisition plan before final approval of the plan.

g. **METRICS:**

(1) Acquisition Strategy approved vs failed to gain approval,
(2) Action Item Tracking.

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1 **ELEMENT:** D62, TBS 1.3.3.4 (IFC 93-3)

2. **ELEMENT TITLE:** Prepare and Approve Source Selection Plans and Standards

3. **ELEMENT OWNER(S):** ASC/CYX

4. **ELEMENT STAKEHOLDER(S):** Project Manager, Source Selection Authority (SSA), and Source Selection Evaluation Board/Team

5. **REQUIREMENT:**

a. AF Regulation (AFR) 70-15/AFFARS Appendix AA, 27 Apr 88, Formal Source Selection for Major Acquisitions, and applicable supplements. AFR 70-15 provides policies and procedures for conducting source selections for major acquisitions, and implements Federal Acquisition Regulation (FAR) Subpart 15.6, Source Selection for Major Acquisitions.

b. AFR 70-30/AFFARS Appendix BB, 27 Apr 88, Streamlined Source Selection Procedures, and applicable supplements. AFR 70-30 provides streamlined procedures for source selections which fall below the dollar thresholds or are outside the scope of competitive negotiated procurements described in AFR 70-15.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The Source Selection Plan (SSP) is a key acquisition document that specifies how source selection activities will be initiated and conducted for an acquisition. The SSP serves as a guide for conducting the evaluation and analysis of proposals, and the selection of source(s) for the acquisition. The evaluation standards, while not a part of the SSP, are used during the source selection process to enable evaluators to measure how well each offeror's approach meets the requirements of the Request for Proposal (RFP).

b. Objectives: The information contained in the SSP reflects the decisions and strategies for source selection as agreed to by the Acquisition Strategy Panel (ASP). The approval of the SSP by the Source Selection Authority (SSA) indicates the plan agrees with the decisions reached at the ASP, and the approval must be obtained prior to release of the RFP. The evaluation standards must be prepared and approved prior to the evaluation of contractor proposals submitted in response to the RFP, and the standards must be written in such a manner that the evaluator(s) will be able to determine the strengths and weaknesses of each proposal. The use of the evaluation standards by the source selection team ensures the selection of the source(s) whose proposal has the highest degree of credibility, and whose performance can be expected to best meet the government's requirements at an affordable cost.

7. **DESCRIPTION:**

a. An SSP is required for all competitive acquisitions conducted under AFR 70-15 or AFR 70-30 procedures. The plan must be prepared by the project office in sufficient time to be reviewed and approved by the SSA prior to release of the final RFP, and to allow for the early establishment of the source selection organization (i.e., SSA, Source Selection Advisory Council (SSAC), Source Selection Evaluation Board (SSEB), Performance Risk Analysis Group (PRAG), or Source Selection Evaluation Team (SSET), as applicable). To ensure consistency among the various documents that address acquisition strategy, it's recommended the project team begin documenting information for the SSP as soon as the development of the draft RFP begins. This early documentation ensures all relevant information in regard to the source selection is captured in the plan (i.e., instructions to offerors, evaluation factors, etc). As the acquisition cycle progresses and the project team obtains additional information pertinent to source selection, the team can add the information to the SSP, or revise the information already contained in the plan. The project team must also ensure the SSP reflects any decisions or strategies agreed to by the ASP in reference to source selection, along with any applicable

Program Management Directive (PMD) guidance or direction prior to submitting the SSP to the SSA for approval.

b. The SSP itself is comprised of two main parts: the first part describes the actual make-up of the source selection organization, along with the responsibilities of the various members, and the second part of the SSP includes the evaluation criteria and the detailed procedures for proposal evaluation. A typical SSP would be structured as follows; however, project teams are advised to consult the source selection regulations, AFR 70-15 or AFR 70-30 and their applicable supplements, prior to preparation of their SSP.

(1) Introduction - Provides a clear, concise overview of the project for which the source(s) will be selected.

(2) Source Selection Organization - Identifies the proposed membership required to conduct source selection activities, which include the SSA and participants on the SSAC, SSEB, PRAG, or SSET, as applicable. Whenever possible, key members of the source selection organization should be identified by name, and position title or functional discipline Participation in the source selection process should be limited to only essential personnel consistent with the complexity of the project, and the proposed team structure must include an estimate of the total number of participants.

(3) Proposed Presolicitation Activities - Describe the activities leading up to the release of the solicitation. This section includes information on market surveys, Commerce Business Daily announcements, or other methods used to identify potential sources. The screening criteria used in determining the qualifications of a potential source must be included in this portion of the SSP, along with a list of the sources identified. Reference to the ASP and any draft RFPs will also be included in this section of the SSP.

(4) Evaluation Procedures - The specific evaluation and rating methodology for proposals are addressed in this section of the SSP. This includes the process to be followed in formulating the government's estimate of the total cost, items having sufficient cost impact to warrant special consideration, and items that represent non-quantifiable cost risks. The project team must include plans for conducting Independent Cost Analysis (ICA), Design-to-Cost (DTC), Most Probable Cost (MPC), or Most Probable Life Cycle Cost (MPLCC) estimates. The evaluation procedures portion of the SSP also provides specific guidance to proposal evaluators in regard to documenting the ratings and risks of each proposal, i.e., symbology to be used, color codes, and risk identifiers. The definitions for the various methods of documenting proposal strengths, weaknesses, and risks must be taken verbatim from AFR 70-15 or AFR 70-30, as applicable, and these definitions must be inserted into the SSP. The use of Deficiency Reports (DRs), Clarification Requests (CRs), and Modification Requests (MRs) must also be discussed. A list of all applicable documents and briefings associated with the source selection, along with the group responsible for that item must be documented. The project team must identify specific items that will be cited in the RFP, such as proposal page limits for the various volumes, whether the text should be single or double spaced, and the minimum acceptable font/pitch of the text.

(5) Evaluation Criteria - Describe the evaluation criteria and other general considerations the government will use in evaluating an offeror's proposal submitted in response to an RFP. The evaluation criteria listed in this section of the SSP is restated verbatim in Section M, Evaluation Factors for Award, of the RFP. The evaluation criteria are intended to show the scope of the evaluation to be performed on proposals, along with identifying the relative order of importance for each criterion. The three types of evaluation criteria to be addressed in the SSP include; specific criteria that relate to important project characteristics (referred to as areas and items), cost (price) criteria, and assessment criteria that relate to an offeror's proposal and his ability to perform if awarded a contract.

(6) Acquisition Strategy - This section of the SSP identifies the type of contract proposed, incentives contemplated, Milestone demonstrations intended, and any special contract clauses to be used. The information contained in this part of the SSP must be compatible with the information documented in the AP.

(7) Schedule of Events - Contains the schedule of significant source selection activities, including sufficient details to enable the reviewing authorities the capability to assess the practicality of the schedule. If the schedule contained in the SSP exceeds 120 days for completion of source selection activities, the project team must include the rationale for the extension beyond the 120-day schedule.

c. As work on the SSP is progressing, the project team should begin documenting the information required for the development of the evaluation standards. The standards must be developed as a stand-alone document, and be written specifically for each individual source selection. It is recommended that the evaluation standards be developed at the same time as the evaluation criteria, since each of the levels of evaluation criteria (item, factor, subfactor) contained in Section M of the RFP must have a correlating evaluation standard to address it. The project team must write the standards so that the proposal evaluator(s) can determine both strengths and weaknesses of the proposal(s), along with determining the degree to which the proposal exceeds or falls short of the standard. The evaluation standards must be completed and approved prior to beginning proposal evaluations.

d. As with the majority of documentation associated with the source selection process, the information contained in the SSP and the evaluation standards must be safeguarded against unauthorized disclosure. The documents must be marked to identify that they are source selection sensitive, and safeguarded as such. The following legend should appear at the top and bottom of the first page of the documents, and at the bottom of all subsequent pages:

Source Selection Information - See FAR 3.104
Source Selection Sensitive
For Official Use Only

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The acquisition strategies for a project must be decided and agreed upon prior to the finalization of the SSP and evaluation standards. This in essence means the ASP must be concluded, with an approved set of minutes from the ASP forwarded to the project team.

b. Exit: The approved SSP by the SSA indicates the plan agrees with the decisions reached at the ASP, and the approval is required prior to release of the final RFP to industry. The approval of the evaluation standards indicates all levels of evaluation criteria contained in the SSP and RFP have a correlating evaluation standard, and the evaluation process may begin once proposals are received.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: While the RFP team is not required by regulation to attend formal training prior to the development of the SSP or evaluation standards, training is encouraged to aid the team in the successful development and completion of the plan and standards (see Data Sheet D63).

b. Outputs: The outputs from the SSP include the evaluation criteria that must be included in Section M of the RFP (see Data Sheet D64), along with acquisition strategy that is reflected in the AP (see Data Sheet D66). The SSP must be approved before the final RFP can be released to industry, and the approved evaluation standards indicate proposal evaluations may be conducted.

10. KEY REFERENCES:

a. AFR 70-15/AFFARS Appendix AA, 27 Apr 88, Formal Source Selection for Major Acquisitions and applicable supplements (see paragraph 5, above, for a brief description of the policies/procedures covered in AFR 70-15).

b. AFR 70-30/AFFARS Appendix BB, 27 Apr 88, Streamlined Source Selection Procedures and applicable supplements (see paragraph 5, above, for a brief description of the policies/procedures covered in AFR 70-30).

c. A Schedule for Acquisition Planning: Initial Acquisition and Strategy Development through Source Selection, Jan 92, Prepared by ASD/CYX. This document describes the tasks that a project team must accomplish from new start review through RFP release, source selection, and first Post-Award Conference, along with timelines for the various tasks/activities associated with major acquisitions.

d. Source Selection Plan Preparation Guide, 1 Dec 92, Prepared by ASC/CYX. Provides descriptions of the kinds of information that must be documented in all SSPs, along with recommending general information that may be included in the plan or inserted as attachments to the SSP.

e. AFSC Request for Proposal Process Guide, Module 4.9, Source Selection Plan (SSP), and Module 4.10, Evaluation Standards. Modules 4.9 and 4.10 of the RFP Process Guide provide brief descriptions of key FAR policies governing the SSP and evaluation standards, along with providing descriptions of the documents, applicability to other processes, and the required reviews, approvals, and coordination associated with each document.

11. IMPLEMENTATION TOOLS: The project team responsible for the preparation of the SSP and evaluation standards should have the above referenced documents available for their use when preparing the SSP and standards. A copy of the FAR, or access to FAR On-Line must be accessible to the team. It is also necessary for the project team to have the approved minutes from the ASP, so the decisions and guidance directed as a result of the meeting can be captured in the SSP. The project team must have available any draft RFPs that were issued to industry, along with any comments received from industry. The comments received in regard to the draft RFPs can be useful when preparing the SSP, evaluation standards, AP, and the final RFP, since the comments received can alert the project team to problems in documentation, requirements, and possible flaws in acquisition strategy that need to be dealt with prior to the release of the final RFP.

12. PLANNING GUIDANCE:

a. DURATION: The ASC/CYX "Schedule for Acquisition Planning," referenced in paragraph 10.c., above, includes a timeline of approximately 5 months for the preparation and approval of the SSP and evaluation standards. The time involved in the preparation of the SSP and standards, however, is subject to the complexity of the project, the availability of required documentation (ASP minutes, etc.), the time required to determine the validity of comments received in response to draft RFPs issued, and the time required for the actual review and approval of the SSP and evaluation standards.

b. CONSTRAINTS: A typical constraint associated with the preparation of the SSP is the scheduling of individuals who are experienced, knowledgeable, and available to serve as members of the source selection organization at the required time. The project team should attempt to identify the exact make-up of their desired source selection organization early in the acquisition cycle to allow sufficient time to contact desired members to determine their availability, and obtain their commitment to serving on the source selection team. Waiting till the last minute to plan the organization of the source selection team may hinder the project team from acquiring the most qualified personnel to support the source selection.

c. RESOURCES: At least one person from each functional discipline should be involved in the preparation of the SSP and evaluation standards. This ensures all concerns in the specific functional areas of the acquisition are recognized, addressed, and dealt with prior to the release of the final RFP, and subsequent evaluation process. A secured facility/area must be available for use by the team when preparing the SSP and standards, since these documents must be protected against unauthorized disclosure in accordance with FAR Subpart 3.104, Procurement Integrity.

d. LESSONS LEARNED: ASC/CYX has documented numerous lessons learned into a text entitled, ASC Request for Proposal and Source Selection Lessons Learned. A few of those lessons are provided below for the project team's consideration when preparing the SSP and evaluation standards; however, if the project team would like a more comprehensive data bank of lessons learned, contact ASC/CYX for a copy of the text.

(1) Early planning for the source selection orgranization, and the associated responsibilities of team members are essential for the successful completion of the entire RFP and source selection processes. It's important to have the same individual(s) who wrote the Statement of Work (SOW) available to help write the SSP, evaluation criteria, evaluation standards, and Section L of the RFP, Proposal Instructions to Offerors. There must be consistency of information throughout the documents, and the individual(s) responsible for writing the SOW have the most knowledge and understanding of the project requirements; therefore, they should be actively involved in the preparation of all RFP and source selection-related documents. It is not only important that those responsible for writing the contractual documents be responsible for writing the SSP and standards, but those same people should be on the source selection team as evaluators, if possible.

(2) Slippage of the source selection schedule can occur if the project team fails to consider the amount of clerical support required for the RFP and source selection processes. While clerical personnel are not considered permanent members of the source selection team, it is critical that the project team designate individuals to provide administrative support on a full-time basis during all source selection activities. Part-time support should also be available during high volume workload periods to ensure there is no slip in schedule.

(3) Require Proposal "Maps" and Cross References. One team found that the key to understanding a complex, multivolume proposal was to have a map of the proposal and an in-depth cross-reference matrix of requirements to specific sections in the proposal. Standardized proposal structure (e.g., volume numbering schemes) would also have aided in the evaluation. By setting a standard for numbering schemes and "review aids" as part of the RFP, the government can ensure that proposal evaluations are thoroughly performed, which, obviously will help in the understanding of the contractor's proposed program and their proposed level of risk.

(4) It is not a "sin" to project more than 120 days for the source selection in the SSP. Put in what is reasonable. Some cases where 120 days would be unreasonable would be a large quantity of proposals are expected to be submitted for evaluation; extensive use of Mil-Prime; or demonstrations to be conducted during the source selection. You will be held to your original schedule for the duration of the source selection; therefore, you should try to project a realistic schedule in the SSP.

e. BEST PRACTICES:

(1) To avoid inconsistency among acquisition/source selection documents, it's recommended that the preparation of the evaluation standards occur simultaneously with the preparation of the evaluation criteria, and the proposal instructions to offerors. The project team may want to ask themselves the following questions:

(a) Is this element critical to my evaluation?

(b) Have I told the offeror in Section L of the RFP what I want to see?

(c) Have I told the offeror in Section M of the RFP that this subject will be evaluated?

(d) Have I checked to be sure that I haven't included the subject of this element elsewhere in the standards?

(2) All key personnel involved in the source selection should have some prior experience with source selection activities. This is possible by allowing personnel who are new to source selection

activities the opportunity to work with experienced evaluators before the "new" personnel actually hold key positions such as factor evaluator, item captain, or panel chief on source selections.

(3) During the preparation of source selection standards, care must be taken to protect the information from unauthorized disclosure. Not only must "hard" copies of documents be protected as Source Selection Sensitive, but information prepared on word processing equipment must also be safeguarded. The project team must ensure source selection standards prepared using word processors are saved in such a manner to protect the information from "public" access, i.e., save the standards on a disk or personal drive vs saving the information on the public drive of the word processor.

f. TRAPS: Failure on the part of the project team to know what's contained in the regulations governing source selection will impact the completion of the SSP and evaluation standards.

1. **ELEMENT:** D63, TBS 1.3.3.1 (IFC 93-3)

2. **ELEMENT TITLE:** Establish and Train Request for Proposal (RFP) Team

3. **ELEMENT OWNER(S):** ASC/CYX

4. **ELEMENT STAKEHOLDER(S):** Program/Project Manager (PM), Functional Representatives and others involved in preparing the RFP

5. **REQUIREMENT:** There is no regulation governing this item. The training is provided as a service by the RFP Support Organization and is not mandatory. It is up to the PM to decide if the team needs training and what kind of training is needed.

6. **PURPOSE/OBJECTIVES:**

Purpose: The purpose of this activity is to establish the RFP team and properly train the team members how to prepare an RFP.

Objectives: The objective is for the team members to be trained as a cohesive team to be responsible for the preparation, timeliness and quality of the solicitation.

7. **DESCRIPTION:**

a. At this stage of the program/project, the basic requirement is approved, the top-level acquisition strategy has been developed, and it is time to start thinking about preparing the solicitation. Probably the most important step at this phase of the program/project is to establish and train an RFP team. Forming the RFP team is the responsibility of the PM who, the majority of the time, becomes the RFP team leader.

b. The composition of the RFP team is a key ingredient to the issuance of a quality product. Success in the acquisition business requires teamwork. Each program/project has unique aspects which will drive the membership needs. No two teams will have the same makeup. The team must focus on the program/project objectives and coordinating their efforts. Each team member must think creatively and actively participate in the development of the RFP. The initial members of the core team are usually identified from within the program/project office and should be the most experienced, qualified available. The following is a list of team members and offices which should be considered:

*Program Manager	Deputy Program Manager
*Systems Engineering	Test and Evaluation
*Financial Management	*Logistics/Supportability
*Reliability/Maintainability	*Manufacturing/Producibility
*Configuration/Data	Quality Assurance
*Contracting Officer/Buyer	Civil Engineering
*Lead MAJCOM Liaison	Support Command/Center Liaison (e.g., ATC, ALCs)
Clerical/Administrative Support	Joint Service Liaison (e.g., Navy, Army, etc.)
Contract Administration Office	Computer Resources/Software Engineering
*Environmental Management	Other USAF activities (e.g., Labs, Test Centers, etc.)
Key Staff Liaison	

*Denotes Typical Core Team Members

c. Another key ingredient to a successful RFP is team training. After the team has been organized by the PM, it should be trained with the assistance of the RFP Support Organization (ASC/CYX) prior to starting work on the request for proposal. All team members should have access to

and be trained in team building concepts. (Actual team building is not the responsibility of ASC/CYX. The local total quality office should conduct the team building training.) A tightly bonded team has a far greater potential to provide a well written, thought-out RFP than a team that is loosely organized as a conglomerate of players.

d. The RFP Support Organization (ASC/CYX) should be contacted when it is time to start thinking about the RFP preparation. They have the expertise and resources available to assist the PM in establishing and training the team and preparing the RFP. Using their AFSC RFP Process Guide (see paragraph 10, Key References) will also be valuable in establishing and training the RFP team. Some of the training modules available include: Model Contract, Statement of Work, Data and Source Selection Plan.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The RFP team can be formed and trained after a requirement, in the form of an Operational Requirement Document (ORD) or Program Management Directive (PMD), has been approved and some basic acquisition strategy has been developed.

b. Exit: This effort ends when the RFP team has been established and trained and ready to prepare the RFP and support the PM prepare other documentation.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The PM should have an approved requirement (e.g., ORD, PMD, etc.) and basic acquisition strategy before developing and training an RFP team. This strategy could come as a result of the output from an Integrated Acquisition Strategy Process (IASP) roundtable (D58) or Acquisition Strategy Panel (ASP), depending on where the program/project starts that process.

b. Output: The output of this activity is an established, trained and cohesive team ready to prepare the program/project RFP. The team, since they will be thoroughly knowledgeable of the program/project, can also support the PM in preparing other documentation. They can help prepare the notice to the Commerce Business Daily (65) to help identify potential industry players in the program/project. They will also aid in preparing the Source Selection Plan and standards (D62). The final output from this team is the RFP document (D64).

10. KEY REFERENCES: AFSC Request for Proposal Process Guide, 29 Mar 91, Section 3, provided information concerning how to establish and train an RFP team. The Guide also includes information on the Commerce Business Daily input and on source selection plans. (A new AFMC RFP guide is due out in Dec 93.)

11. IMPLEMENTATION TOOLS: ASC/CYX has handouts available that they use in their training process. Examples include handouts on programmatic and scheduling issues. They also have computer-based RFP preparation tools and two automated RFP preparation rooms.

12. PLANNING GUIDANCE:

a. DURATION: The "Schedule for Acquisition Planning: Initial Acquisition and Strategy Development through Source Selection," Jan 92, prepared by ASC/CYX, indicates the average time required for establishing and training an RFP team is approximately 10 days. (The 10 days is sometimes spread out and not done in succession.)

b. CONSTRAINTS: A constraint is not having team members knowledgeable in the acquisition process or adequate representation when needed, (i.e. up front).

c. RESOURCES: The resources required will include the PM and all of the functional and support personnel needed to comprise the RFP team. Each program/project RFP team will probably be different, based on the requirements of the program/project.

d. LESSONS LEARNED:

(1) It has been shown repeatedly that using the "new guy" as a member of the RFP core team is not efficient.

(2) In the past, AFMC personnel involved in developing RFPs have lacked in-depth knowledge and training about the RFP process, team formation and team building. This team training has alleviated this problem.

(3) Continuity of RFP team members is important to the successful operation of the team. Ideally, the RFP team members should be selected so that they are available throughout the RFP preparation process and also serve as members of the source selection team.

(4) ASC/CYX has a lessons learned handout available.

e. BEST PRACTICES:

(1) Your local RFP support organization is a key contributor to the success of your solicitation. Contact them early in your RFP process. At ASC, the support organization is ASC/CYX, DSN 785-7073.

(2) Each team member should read all the routine program/project documentation (i.e., PMD, ORD or other operating command document) and be aware of the level of funding and schedule for the acquisition. These are important educational tools.

(3) All team members should have received an orientation on the AFMC guiding principles for total quality.

f. TRAPS: If functional and support participants are not involved from the beginning of the team forming and training process, the overall effort can be delayed. Without an adequate number of people for the team or not having the right people involved, the remainder of the team can be overwhelmed with work and the end product can suffer.

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1. ELEMENT: D64, TBS 1.3.3.3 (IFC 93-3)

2. ELEMENT TITLE: Prepare Request for Proposal (RFP)

3. ELEMENT OWNER(S): ASC/PKC, ASC/CYX

4. ELEMENT STAKEHOLDER(S): Program/Project Manager (PM), Program/Project Contracting Office, Program/Project Team, Functional Office Representatives, and ASC/CYX.

5. REQUIREMENT:

a. FAR 15.4, Solicitations and Receipt of Proposals and Quotations-- Provides policies and procedures for planning and preparing solicitations.

b. AFFARS 5315.406, Preparing Request for Proposals (RFPs) and Request for Quotations (RFQs) -- Provides additional policies and procedures for the preparation of RFP Sections A, H and L.

c. AFMC FAR Sup 5315.4, Solicitation and Receipt of Proposals and Quotations -- Provides policies and procedures for using and preparing solicitations including Draft RFPs.

d. ASC FAR Sup 5315.4, Solicitation and Receipt of Proposals -- Provides policies and procedures for using and preparing solicitations, including Draft RFPs.

e. FAR 5.202, Synopsis of Proposed Contracting Actions -- Provides the policy and procedures for synopsizing RFPs.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose of this element is to prepare a draft RFP(s) and formal RFP to transmit the Government's requirements to Industry.

b. Objectives: The objective is to prepare a quality solicitation (RFP) including all the Government's requirements, including functional inputs, from which industry can submit a responsive proposal. It is also an objective to prepare a quality formal RFP by using the draft RFP process.

7. DESCRIPTION:

a. At this stage of the project the acquisition strategy is being formed and refined. It is time to start pulling all of the Government's requirements together to form the solicitation and getting feedback from industry through the draft RFP process.

b. The planning and development of a new RFP begins with the RFP team formation and training process (D63). The RFP team consists of a team leader (i.e., usually either the PM or the contracting officer) and core team (cadre) made up of representatives from functional and other offices depending upon the specific acquisition, its level of complexity and perceived risks involved in accomplishing the acquisition. As a group, the RFP team is responsible for developing a timely, responsive and quality RFP. They ensure the RFP includes the strategy approved by the Acquisition Strategy Panel (ASP) and reflected in the Acquisition Plan (AP). The PM ensures the proper mix (which is usually program/project dependent) of functional experts is represented on the team.

c. The whole RFP process is a compilation of numerous RFP activities and documents that, when combined, result in the government's requirements being communicated to industry. The activities are documented in the RFP subprocess documents (i.e., specifications, statements of work (SOWs), contract data requirements lists (CDRLs), security requirements (DD254), source selection evaluation criteria, warranty strategy, etc.). The RFP is dependent on all of these activities. RFPs shall be prepared using the uniform contract format prescribed in FAR 15.406, consisting of 4 parts and 13 sections, where Parts I, II,and III will eventually become the resulting contract (model contract in the RFP). The specifics of what should be in each part are described in the above FAR references and the

AFSC RFP Process Guide (see Implementation Tools below). The RFP (including model contract) is an integrated document and is complete when all the team members' inputs have been combined into one complete document.

d. The FAR requires the use of Draft RFPs on most competitive acquisitions. A Draft RFP is a preliminary version of the formal RFP, but it is not required for noncompetitive acquisitions. It is a communication tool used early in competitive acquisitions to promote a clearer understanding of requirements to industry and obtain industry feedback on the planned acquisition. Industry feedback from the Draft RFP enables the Government to produce a more effective, quality RFP and aids the offerors in preparing better proposals in response to the formal RFP. It should also reduce proposal preparation and evaluation time. The Draft RFP is prepared and reviewed in accordance with the above requirements then issued to industry. Industry reviews the document and offers comments back to the program/project team. Comments (including questions, suggestions, challenges to requirements and general remarks) help eliminate conflicts, pare requirements to absolute minimum, reduce proposal preparation time, and reduce the time required for government evaluation. The comments are evaluated by the team which incorporates the appropriate ones into the program planning and final RFP.

e. A final/formal RFP is not completed until after the ASP (D61), if one is convened, and Roundtable III (D67) of the Integrated Acquisition Strategy Process (IASP) is held. This will ensure the acquisition strategy recommended by the ASP and any final documents prepared by the Roundtable III participants are included in the solicitation. All of the functional inputs are updated from the Draft RFP as a result of industry comments and included in the final RFP. If the program/project is an ACAT I program, DOD Directive 5000.2 requires that the Milestone Decision Authority (MDA) review solicitations and contracts before their release or execution for the Demonstration and Validation Phase or later phases. The RFP could accompany the Acquisition Plan and Acquisition Strategy Report through their coordination/approval cycle to be approved by the MDA. The formal RFP can be released to industry only after MDA approval of the RFP and approval of the Acquisition Plan.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The RFP process begins after a program/project office receives direction to undertake a negotiated acquisition. An RFP team needs to be established and trained prior to preparing the RFP (D53). All RFP team members should start planning what inputs will be incorporated into the RFP for their area (see the list of inputs in paragraph 9, below). (For example, issue a data call for the subsequent Contract Data Requirements List.)

b. Exit: RFP preparation ends when the RFP completes its approval process prior to its release to industry.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: Inputs to preparing the RFP include publishing the Commerce Business Daily (CCB) notification and identifying potential sources (D65), and preparing source selection plans and standards (62). Also, every RFP team member will have an input to the RFP for his/her area. If he/she is not responsible for preparing a document that becomes a physical part of the RFP, he/she may play an important role in the accomplishment of other numerous subprocesses and subtasks within the RFP process. Every document or activity in the RFP process either provides input to or receives input from (or both) another document or activity in the process. The subprocesses and subtasks include, but are not limited to the following:

- Acquisition Strategy Panel (ASP)
- Acquisition Plan
- Commerce Business Daily (CBD) Announcements
- Source List

- Specifications (including test and evaluation requirements)
- Statement of Work (SOW)
- Work Breakdown Structure (WBS)
- Source Selection Plan
- Contract Data Requirements List (CDRL)
- Evaluation Standards
- Evaluation Factors for Award (Section M)
- Proposal Preparation Instructions
- Model Contract (Sections A - J)
- Contract Security Classification Specification (DD254)
- Source Selection Authority (SSA) Delegation

(All of the above sub processes and sub tasks are prepared by or received through the RFP team members either as a result of the ASP (D61) or the Operational Roundtable (D67). They are discussed individually in Part 4 of the AFSC RFP Process Guide, available from ASC/CYX.)

b. Outputs: The output is a quality RFP, including model contract, that the Government can release to Industry (D69).

10. KEY REFERENCES:

a. ASC/CYX's "A Schedule for Acquisition Planning: Initial Acquisition and Strategy Development Through Source Selection."

b. HQ AFSC Request for Proposal Process Guide.

c. AFMCR 70-7, Solicitation Review Boards -- Establishes criteria for Solicitation Review Boards (SRBs).

d. AFR 70-15 (AFFARS Appendix AA) Source Selection, contains policies and procedures on conducting source selections.

e. AFR 70-30 (AFFARS Appendix BB) Streamlined Source Selection, contains policies and procedures for conducting streamlined source selections.

f. DOD Instruction 5000.2, Part 2.C, Defense Acquisition Management Policies and Procedures, Change 1, 26 Feb 93, contains guidance on solicitations.

g. AFMC Pamphlet 800-7, Integrated Acquisition Strategy Process, contains guidance on the Roundtable/ASP process.

11. IMPLEMENTATION TOOLS: At ASC, ASC/CYX is the OPR for RFP preparation process (DSN 785-7613). They conduct training classes on forming and establishing RFP teams and also conduct training on how to prepare an RFP. ASC/CYX has resources, including experts, facilities, computer hardware and software, available to facilitate the team to prepare an RFP. Additional tools included in the AFSC RFP Process Guide are the following:

- Generic RFP process flowchart (for major competitive acquisitions)
- Essential RFP document process interdependencies flowchart
- RFP critical sub process interdependency matrix

12. PLANNING GUIDANCE:.

a. DURATION: This element is Program/Project dependent; however, the ASC/CYX "Schedule for Acquisition Planning" contains a generic time schedule for the events leading up to and issuing the RFP. That schedule shows approximately 6 months from the time the Draft RFP is initiated until the formal RFP preparation is completed. The time allowed for the offeror to prepare its proposal is also dependent on the Program/Project. The above ASC/CYX schedule also contains an average time of approximately 60 days which should be allowed from release of RFP to receipt of proposals.

b. CONSTRAINTS: The source selection plan needs to be approved prior to release of the competitive RFP. The acquisition plan needs to be submitted and the approval authority needs to authorize release of the RFP if the acquisition plan is not yet approved.

c. RESOURCES: This item is dependent upon the program/project, but, as a minimum, there should be at least one person from each functional discipline on the program/project management team preparing the RFP. The size of a ASC/CYX-trained RFP varies considerably in size.

d. LESSONS LEARNED:

(1) Schedules for preparation and release of RFPs should be realistic and not overly optimistic since there are always unforeseen actions which come up during the solicitation process phase.

(2) Involve the contract reviewer (ASC/PKCC) in the process as an RFP team member from the beginning of the acquisition. Issues are resolved earlier and quality does not need to be inspected.

(3) In Joint service program acquisitions, have a high level management involvement in, and commitment to, the RFP and source selection schedule early-on from all participating Services .

(4) Be prepared to write and issue numerous iterations of Draft RFPs.

(5) Seek and fully consider advice from other organizations which have been through the process recently and those who have expertise in a certain area. (Ex: ASC/YX has expertise in the pre-Milestone I acquisition process.)

(6) Involve industry in the Draft RFP preparation, not just review of the final product.

(7) The US. Air Force Automated Lessons Learned data base has numerous lessons learned concerning various program/project factors which should be reviewed during the RFP development.

e. BEST PRACTICES:

(1) It is important that each member of the RFP team have a general understanding of the overall RFP development process including where their assigned activities fit. Without this understanding they will likely end up supporting only a small segment of the overall process (their task) rather than the effective development of the RFP. A good RFP is an integrated document and not just a bunch of pieces pasted together behind a cover page.

(2) RFP team training from ASC/CYX is advantageous in initiating the RFP process.

(3) A draft RFP is advantageous to the program and should be used if time permits, even if it is not required. Through the Draft RFP process, early, open and effective communication with

industry results in greater understanding of requirements, efficiently tailored and documented requirements, fewer adversarial relationships and a sense of ownership in the end product. The Draft RFP should be a complete RFP and include, at a minimum, the Instructions to Offerors (Section L), Basis of Award and Evaluation Criteria (Section M), model contract including contract line item structure, special contract requirements, contract data requirements list, statement of work and specifications. Draft RFPs are not normally used in noncompetitive acquisitions. However, if industry feedback is considered essential for sound planning of noncompetitive acquisitions, specific information may be requested from the potential contractor by an informal letter. This process requires written approval and must not be used to circumvent the Justification and Approval (J&A) process for approving noncompetitive acquisitions.

(4) The PM should make a schedule early on in the program/project which includes all events leading up to issuing an RFP and discuss it with the RFP team. This will help identify all the tasks and reviews to ensure the time allotted is sufficient to get the job done right.

f. TRAPS:

(1) Be sure all the functional representatives provide their respective RFP inputs in a timely manner and that proper resources are in place.

(2) Be sure to include enough time in the schedule for issuing a Draft RFP, possibly in incremental releases when data becomes available.

(3) Ensure the acquisition is noncompetitive (approved J&A) prior to requesting Draft RFP-type information from a single offeror (See Best Practices). If you request information from a sole offeror prior to the J&A approval, you may have given the offeror a competitive advantage if the acquisition is not approved as noncompetitive.

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1. ELEMENT: D65, TBS 1.3.3.2 (IFC 93-3)

2. ELEMENT TITLE: Identify Potential Industry Players

3. ELEMENT OWNER(S): Product Center, Contracting, and Small Business Offices

4. ELEMENT STAKEHOLDER(S):

Program/Project Office
Program/Project Manager
Contracting Officer
Small Business Office
Office of Public Affairs

5.REQUIREMENT:

a. Federal Acquisition Regulation (FAR), Part 4, Subpart 4.8, Contract Files, and applicable supplements. FAR Part 4 provides policy and procedures relating to the administrative aspects of contract execution. Subpart 4.8 provides specific requirements for establishing, maintaining, and disposing of contract files.

b. Federal Acquisition Regulation (FAR), Part 5, Publicizing Contract Actions, and applicable supplements. FAR Part 5 provides policies and procedures for publicizing contract opportunities and award information.

c. Small Business Act, 15 U.S.C. 637(c) and Office of Federal Procurement Policy Act, 41 U.S.C. 416. The Small Business Act and the Office of Federal Procurement Policy Act provide requirements for government agencies to furnish for publication in the Commerce Business Daily (CBD) notices of proposed contract actions.

6. PURPOSE/OBJECTIVES:

a. Purpose: Identify potential industry players early in the acquisition process.

b. Objectives:

(1) One requirement of all government procurements is to compete acquisitions whenever possible, and ultimately select the contractor who can best meet the government's requirements at a fair and reasonable price.

(2) The identification of potential industry players early in the acquisition process provides the project team the opportunity to determine whether the government's requirements can be fulfilled through full and open competition, whether or not a small business or small disadvantaged business set-aside is appropriate, or whether only one source isavailable to fulfill the government's requirement.

(3) By simply being aware of the numbers and types of potential sources available for an acquisition, the project team will be better prepared to move out in the right direction on a project, and possibly avoid problems later in the acquisition cycle.

7. DESCRIPTION:

a. The process for identifying potential contractors is two-fold. First, sources can be derived from the personal knowledge of key acquisition personnel, such as program/project managers (PM) or contracting officers, and second, sources can be identified from contractor responses to Commerce

Business Daily (CBD) announcements. The CBD is the public notification media to publicize (synopsize) government contracting opportunities, and contractors refer to the CBD to identify projects for which they want to compete. The notice serves as the government's tool for increasing possibilities for competition by enabling all contractors an opportunity to indicate their interest in competing for a project. A majority of potential players for a project are identified from responses to CBD notices. The notice placed in the CBD is required by the Federal Acquisition Regulation (FAR), Part 5, Publicizing Contract Actions, and this regulation should be consulted early in the planning phase of your project to ensure compliance with its requirements.

b. As potential sources are identified, project personnel must document such information as the name and address of the organization, and the size status of the firm, if known. While the PM has primary responsibility for the initial development of the source list, the Contracting Officer also plays a key role in its development. The list may be typed on plain bond paper, or AFMC Form 34, Source List, may be used. While the AFMC Form 34 is an optional form that is not widely used within ASC, it's important to know it is available for use by project personnel. The PM can begin documenting potential sources as soon as sources become known from early exploratory discussions with industry. Additionally, project team members may have knowledge of contractors performing work on programs of a similar nature to the project in question, and these contractors may be considered potential sources. The list, however, is not complete until all contractors have had an opportunity to respond to a synopsis notice published in the CBD.

c. The notice published in the CBD is composed as a joint effort between project team members. The technical information needed for the notice can be compiled as soon as the requirements for a new project are identified. The PM is responsible for having the technical information compiled, and ensuring its accuracy. Once the PM has completed the technical requirements portion for the notice, the information is given to the contracting officer. The contracting officer is responsible for the preparation of the actual notice, and its subsequent submittal to the CBD. There are various categories of notices published in the CBD, and the project team must determine which category is appropriate for the project. The distinct characteristics of each project will drive the exact type of notice selected for publication in the CBD. For guidance in determining which type of notice is appropriate for the project, reference either the Federal Acquisition Regulation (FAR) Part 5, Publicizing Contract Actions, or the Request for Proposal Process Guide, Module 4.4, Commerce Business Daily (CBD) Notices. It's strongly recommended that the project team consult these documents early in their planning phase because of the time frames which must be met for the publication of a notice prior to release of a request for proposal, and because several exceptions do exist to whether a notice is required.

d. Along with determining the type of notice to be used and ensuring the synopsis is prepared in the proper format, the project team must determine the appropriate Standard Industrial Classification (SIC) code, and the correlating size standard for potential contractors (see Federal Acquisition Regulation (FAR) Part 5, Subpart 5.2, Synopses of Proposed Contract Actions, and FAR Part 19, Subpart 19.1, Size Standards). In addition to including the SIC codes and size standards in the notice, the Contracting Officer must ensure the inclusion of the standard ombudsman statement in Item 17 of the notice (see Air Force Materiel Command FAR Supplement, Part 15, Subpart 5315.11, Ombudsman Program). Finally, the contracting officer must ensure the insertion of any applicable numbered notes to highlight generic requirements of the project. The purpose of the notes is to help conserve space and simplify the identification of repetitive notices in the CBD. The notes are to be referenced at the end of the notice by either inserting the appropriate number of the note, or the notes can be tailored to be project-specific, and be included in the notice in full text. An explanation/description of the numbered notes appears weekly in the Monday edition of the CBD, and this edition of the CBD should be referenced when determining which notes may be applicable to a specific project.

e. The contracting officer will ensure the synopsis is typed on AFMC letterhead, and the original plus four copies are submitted to the Small Business Office, ASC/BC. The information contained in Item 17 of the notice should be saved in ASCII format on a 3-inch disk (used for electronic transmission purposes), and the disk should accompany the hard copies of the notice submitted to the Small Business Office. Upon review and coordination of the synopsis by the Small Business Office, ASC/BC forwards a

copy of the synopsis to the Office of Public Affairs, Media Relations Division, ASC/PAM, for their review and approval prior to release of the notice to the CBD. Concurrently, the Small Business Office forwards a copy of the synopsis along with the 3-inch disk, to the Contract Support Section, ASC/PKMB. The Small Business Office also forwards a coordination copy of the synopsis back to the originating project office, and one copy is retained in ASC/BC. The Office of Public Affairs reviews the notice to determine the releasability of the information to the public, and notifies the Contract Support Section when that determination is made. Upon notification from ASC/PAM, the Contract Support Section electronically transmits the notice, via CBD Express, for publication in the CBD.

f. Once the notice is published in the CBD, interested contractors may submit documentation to the sponsoring office supporting their qualifications to compete for the proposed project. The documentation submitted in response to the notice is reviewed by the project team to determine the eligibility status of the contractor. The determination of a contractor's eligibility to compete for an acquisition involve: verifying any clearances required of the potential offeror, and ensuring the contractor is not on the debarred/suspended list (List of Parties Excluded from Federal Procurements or Nonprocurement Programs). If the project team determines the contractor is eligible to receive a copy of the Request for Proposal (RFP), the company is included on the source list. Inclusion on the source list ensures the contractor will be mailed a copy of the RFP when it is ready for release to industry.

g. After the project team has identified all known sources, a complete source list is compiled, and the list is forwarded to the the Small Business Office (ASC/BC) for review and coordination. The review of the source list by ASC/BC ensures the inclusion of any small or disadvantaged business concerns who may possess the capabilities to fulfill the government's requirements under the project. The review also aides in identifying potential small business set-asides, or possible subcontracting opportunities for small businesses. As changes occur to the source list, it is important that the project team route the revised list back to the Small Business Office. This additional review by ASC/BC provides input to whether the method of procurement originally recommended by the project office should change (i.e., full and open competition vs a small business set-aside).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The initial effort for identifying potential industry players for a project can begin as soon as requirements for a new project are identified. At this point, early exploratory discussions can occur between the project team and industry, and work on an initial source list can begin. Also, once the requirements for the project are identified, the PM can begin to pull together the technical information necessary to have the proposed acquisition synopsized in the CBD.

b. Exit: Receipt of contractor responses to the notice published in the CBD identifies the majority of potential players for a project. Those respondees who are determined to be qualified to compete for an acquisition (not suspended, debarred, etc.), are included on the source list and will be mailed a copy of the RFP.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The technical accuracy of the information included in the notice for the CBD is key to identifying potential sources for a project (see Data Sheet D37B). Contractors review the CBD to identify projects for which they may be qualified to successfully perform, and their responses to a notice will be dependent upon the information contained therein. It's imperative that the technical information be accurate so all contractors who may be capable of fulfilling the government's requirements respond to the notice. The project team runs the risk of losing potential sources if the technical requirements information is not clear and accurate. On the other hand, the project team may also be inundated with responses to a CBD notice if the requirements information is vague and unclear.

b. Output: The complete source list, comprised of all qualified contractors known to the project team, and any additional contractors who submit a request for the RFP, is the key output in the process of identifying potential sources for a project. This list is used by the project office when the request for

proposal is ready for release to industry, since only those contractors appearing on the list will receive a copy of the RFP (see Data Sheet D69).

10. KEY REFERENCES:

a. Federal Acquisition Regulation (FAR) Part 5, Publicizing Contract Actions, and applicable supplements (see paragraph 5, above, for a brief description of policies covered under FAR Part 5).

b. Federal Acquisition Regulation (FAR) Part 9, Contractor Qualifications, and applicable supplements. FAR Part 9 provides policies, standards, and procedures for determining a prospective contractor's responsibility, and also provides policies governing the debarment, suspension, and ineligibility of contractors.

c. Federal Acquisition Regulation (FAR) Part 19, Small Business and Small Disadvantaged Business Concerns, and applicable supplements. FAR Part 19 implements the acquisition-related sections of the Small Business Act (15 U.S.C. 631), and provides specific policies for set-aside procurements with small or small disadvantaged businesses, along with defining the size standards contractors must meet to be considered as a small or disadvantaged business concern.

d. AFSC Request for Proposal Process Guide, Module 4.4, Commerce Business Daily (CBD) Notices, and Module 4.5, Source List. Modules 4.4 and 4.5 of the RFP Process Guide provide a brief description of key FAR policies governing CBD notices, and the documentation/maintenance of the source list.

11. IMPLEMENTATION TOOLS: A current copy of the FAR and all applicable supplements is essential for the project team to ensure the requirements are met for the publication of a synopsis in the CBD. Regulatory requirements also exist in FAR for the completion and maintenance of the source list. If a hard copy of the FAR and all its supplements are not available to the project team, access to FAR-On-Line in the Acquisition Management System (AMS) is required.

12. PLANNING GUIDANCE:

a. DURATION:

(1) The time involved in the preparation of the notice for the CBD, and the completion of the source list will vary from project to project. The PM will require more time for compiling the technical information for the notice when the technical requirements are complex. Once the contracting officer has the technical information for the CBD notice, he can normally research the specifics required for the various categories of synopses and ensure the notice is typed and forwarded for review by the Small Business Office within 2 days of receipt of the requirements information from the PM. Turn-around time of a synopsis for review and coordination by the Small Business Office is a maximum of 3 days. The Office of Public Affairs receives the synopsis from ASC/BC, reviews the content of the synopsis, and approves its releasability to the public within a maximum of 2-3 days. The turn-around time for a notice in review by ASC/PAM is strictly dependent on the content of the notice. Many notices are in and out of review in a day or less when the requirements for the acquisition are clear and concise, and when no additional coordinations are required. If a notice doesn't require additional reviews outside ASC, the Office of Public Affairs notifies the Contract Support Section that the notice may be released. When the Contract Support Section receives the go-ahead to transmit the synopsis to the CBD, the notice is normally transmitted via the CBD Express within 2 days of receipt of approval from the Office of Public Affairs. Publication of the notice in the CBD usually occurs within 2-3 days after receipt.

(2) Factors to consider when developing the source list should include the response time allowed for potential sources to respond to the notice published in the CBD, review of responses to the notice to determine eligibility status of the various contractors, clearance verification of potential sources when applicable, the time needed to document the sources on a list, and the review of the source list by the

Small Business Office (ASC/BC). The Small Business Office quotes a maximum of 3 days to review a source list however, the turn-around time for the review is usually less than the 3 days quoted.

b. CONSTRAINTS: It is important to note that the source list may require updates throughout the acquisition process. Updates should occur as additional sources are identified, or because the eligibility status or size standards have changed for previously identified sources. A contractor's eligibility status for receipt of a request for proposal may change due to debarment, suspension, a clearance being revoked, or a contractor's clearance being downgraded to a level below what is required for performance under the project. For those specific reasons, a contractor would be removed from the list of contractors eligible to compete for the project. The project team must monitor monthly updates to the List of Parties Excluded from Federal Procurements or Nonprocurement Programs to ensure a contractor is not placed on the debarred/suspended list prior to release of the request for proposal. The project team must also ensure the Security Manager for the project keeps the team informed of any changes to the clearance levels of potential sources that could impact the contractor's eligibility to compete for the project.

c. RESOURCES: The resources involved in identifying potential industry players for a project involve personnel from various disciplines. An overview of their responsibilities, and the time involved in performing their specific tasks is addressed below.

(1) The PM is responsible for compiling the requirements information contained in the notice for the CBD. The time involved in this effort depends primarily on the level of technical complexity of the project in question. After compiling the requirements information, the PM submits the technical portion for the notice to the Contracting Officer, who in turn, completes the remainder of the notice. The PM becomes involved in the process again when contractor responses to the notice are submitted for review. The review is simply a look to see whether the contractor meets specific requirements addressed in the notice, and is not intended to be an in-depth evaluation of a contractor's ability to fulfill all aspects of the project. The review basically verifies whether the contractor's stated qualifications fall in line with the Standard Industrial Classification (SIC) code and the size standard cited in the CBD notice. The number of responses to a notice is a factor in the amount of time required for completing the task of reviewing the contractors' eligibility to compete for the project. Once the review is complete, the PM documents all contractors qualified to compete, and provides the list to the contracting officer.

(2) The contracting officer is responsible for ensuring the notice is prepared for the CBD based on the technical information provided by the PM. Normally, the Contracting Officer can research the specifics required for the various categories of synopses, and ensure the notice is typed and forwarded for review to the Small Business Office within 2 days of receipt of the requirements information from the PM. After the entire synopsis process is complete, i.e., the notice is sent, published, and responses have been submitted and reviewed by the project team, the complete source list is compiled. If clearances are required of contractors for performance under the project, the Contracting Officer must ensure the contractors' clearances are verified by the security manager prior to release of the request for proposal. The Contracting Officer also ensures the Small Business Office reviews the source list to identify any potential small businesses, or small disadvantaged business concerns that may have been overlooked by the project team.

(3) The Small Business Office (ASC/BC) is responsible for review of the synopsis notice prior to its submittal to the Office of Public Affairs (ASC/PAM), and the Contract Support Section (ASC/PKMB). The turn-around time of a synopsis for review and coordination by the Small Business Office is a maximum of 3 days. The review of the notice by the Small Business Office helps identify potential small business set-asides, and possible subcontracting opportunities for small businesses. The review of the source list also takes a maximum of 3 days by the Small Business Office. The review is required to ensure all potential small businesses and small disadvantaged business concerns are included on the source list.

(4) The Office of Public Affairs (ASC/PAM) is responsible for reviewing the synopsis notice prior to its release to the CBD. The review ensures the information contained in the notice is releasable to the public, and that the notice has been prepared in the proper format. The review of the notice takes a maximum of 2-3 days. The Office of Public Affairs is also responsible for notifying the Contract Support Section (ASC/PKMB) that the notice can be transmitted to the CBD.

(5) The Contract Support Section (ASC/PKMB) is responsible for the electronic transmission of notices to the CBD. When the Contract Support Section receives the go-ahead to send the synopsis to the Commerce Business Daily, the notice is normally transmitted via the CBD Express within 2 days of receipt of approval from the Office of Public Affairs (ASC/PAM).

(6) The security manager assigned to the project office is responsible for verifying the clearances for all contractors identified on the source list when possession of a clearance is required for performance under a project. The security manager can base the clearance verification on current information maintained in the security files, or if there is no current clearance information available, the security manager must obtain written verification from the Defense Investigative Service (DIS), Central Verification Center. The security manager can call, FAX, or write to DIS requesting the clearance information for the contractors appearing on the source list. It takes approximately 5-7 days to receive written verification from the DIS once the request for clearance has been made. Based on the clearance information provided by DIS, the security manager makes any necessary changes to the source list, and the list is then returned to the contracting officer.

d. LESSONS LEARNED: A determination was made for a project to be synopsized for full and open competition based on moderate overall program risk. The Small Business Administration, however, recommended the project be set aside for small business. To resolve the issue a director-level visit to several small businesses was conducted, and it was revealed that at least two small businesses could adequately fulfill the requirements of the project. Lesson learned--when attempting to determine whether to recommend a project for full and open competition vs a small business set-aside, it is imperative to have a strong, up-front technical analysis before contacting the ASC Small Business Office or the Small Business Administration. Insure that the technical team can adequately document the technical risk of the project vs capabilities of small business to meet minimum requirements, and establish technical screening criteria to be published in the initial synopsis so that informed decisions can be made. Do this before recommending full and open competition due to lack of two or more qualified small businesses.

e. BEST PRACTICES:

(1) Recommend bringing the Small Business Office (ASC/BC) into the acquisition process early to assist in the identification of potential small businesses, and to help determine the possibility of a small business set-aside. ASC/BC involvement should begin prior to the synopsis notice being published in the CBD, and should continue until all potential sources have been identified for the project. The Small Business Office plays a major role in identifying those small or disadvantaged businesses who may be qualified to compete and perform on the proposed project. While the small business identified may not be capable of performing as the prime contractor on the project, the company may be able to perform subcontracting responsibilities for the prime contractor. The project office may save valuable time later in the acquisition process by not having to make revisions to the source list, or having to change a procurement from what was thought to be full and open competition to a small business set-aside if ASC/BC is consulted early in the acquisition process. The bottom line is--use your valuable resources, such as the Small Business Office, early in the acquisition cycle and continue to draw on their expertise throughout the process.

(2) When the PM is compiling the technical requirements information to be included in the CBD notice, it's important to be as specific as possible as to what the actual requirements are for the proposed project. While the use of notes at the end of a notice is recommended to shorten the length of a synopsis, it is sometimes necessary to tailor those notes for specific project requirements. By tailoring the notes to fit specific project requirements, contractors will be better equipped to identify projects that

are within their performance capabilities. The contractors' qualification statements will reflect their understanding of the government's requirements, and thus provide more accurate information back to the project office for their use in evaluating the qualification status of the contractor. Also, if the requirements of the proposed acquisition are determined to be out of the scope of the contractor's performance capabilities, the contractor may choose not to respond to the synopsis at all. The fewer the responses, the less time spent by the project office reviewing and tracking the eligibility status of potential sources.

(3) It is also recommended that copies of the source list be made available to potential contractors to assist in identifying subcontracting opportunities or teaming arrangements for a project. This is extremely beneficial to small businesses wanting to acquire more expertise in government contracting. A copy of the source list may be maintained in the Project Office Library, on the ASC Electronic Bulletin Board, and/or a copy of the list may be included in the request for proposal.

(4) Whenever possible, it is recommended that the CBD Express be used for the electronic transmission of synopses to the CBD. Notices transmitted via CBD Express are usually published within 2-3 days of receipt, vs an average of 7-10 days total transmission/publication time when synopses are sent through the postal system. For transmittal purposes, the Item 17 portion of the notice must be saved in ASCII format on a 3-inch disk. However, if the information cannot be saved in ASCII, the project office should indicate in a note to the Contract Support Section, ASC/PKMB, the format used in saving the data on the disk. The Contract Support Section can then attempt to convert the information into ASCII format so the notice can be electronically transmitted to the CBD. The office of primary responsibility for the CBD Express transmission program is ASC/PKMB, extension 54344.

(5) It's recommended the project team designate an individual to receive training by ASC/CYX on the functions/capabilities of the Preaward Information Exchange System (PIXS) Electronic Bulletin Board. The individual would then be responsible for entering information on the PIXS for access by other team members and contractors connected to the electronic bulletin board. Information for publication could include key Request for Proposal documentation such as source lists, CBD announcements, notice of preproposal conferences, model contracts, Systems Requirements Document (SRD), etc. The individual would be responsible for both entering data on the PIXS, and deleting previously published information, as applicable. Project teams should contact ASC/CYX for a copy of the PIXS User's Manual for a complete description of system functions/capabilities.

f. TRAPS:

(1) When the project team is making the determination for the appropriate Standard Industrial Classification (SIC) code, it is imperative that the size standard cited for potential contractors correlates with the SIC code selected. If the two aren't in correlation with one another, the Small Business Office will return the synopsis to the contracting officer for resolution.

(2) When reviewing the eligibility status of a potential contractor, it is imperative that the project team review the List of Parties Excluded from Federal Procurement or Nonprocurement Programs. If a contractor appears on the debarred/suspended list, they are ineligible to receive a copy of the request for proposal. The project team must; therefore, ensure the debarred/suspended contractor does not appear on the source list of eligible contractors who will be receiving the request for proposal.

(3) Also, when there is a possibility of classified information being involved in a project, it is important that the project office have the clearance levels of potential sources verified. If a contractor does not have the appropriate levels of clearance required to perform work on the project, or if a contractor's clearance level is downgraded prior to the release of the RFP, the contractor will be ineligible to receive the request for proposal. The project team must ensure the ineligible contractor does not appear on the source list with the contractors who are eligible to receive the request for proposal.

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1. **ELEMENT:** D66, TBS 1.3.2.8 (IFC 93-3)

2. **ELEMENT TITLE:** Develop Acquisition Plan (AP) From Acquisition Strategy Report (ASR)

3. **ELEMENT OWNER(S)** ASC/PK, ASC/CY

4. **ELEMENT STAKEHOLDERS**: Primary inputs to the AP are by individuals, groups, and organizations that may have a significant impact on the acquisition plan including requirements and using activities, legal, engineering, comptroller and contracting communities. Other organizations having input into the plan include representatives from test and evaluation, program management, logistics, manufacturing, quality assurance, competition advocate, environmental, and medical(occupational health), or other personnel, if appropriate, considering the given acquisition. The Program Manager has overall responsibility for the Acquisition Plan. The Contracting Officer with help from other program office functionals, prepares and maintains the Acquisition Plan.

5. **REQUIREMENT:**

a. Federal Acquisition Regulation (FAR) 7.1 and supplements, Acquisition Plans.

b. DOD 5000.2M, Defense Acquisition Management Documentation and Reports, Part 4, 23 Feb 91

6. **PURPOSE/OBJECTIVES**:

a. Purpose: The purpose of the AP is to serve as a top level planning document.

b. Objective: Its objective is to ensure the effective integration of various acquisition strategy events, documents, and activities to fulfill the user's needs in the most effective, economical, and timely manner.

7. **DESCRIPTION**: The plan is used to integrate the acquisition strategy in a single comprehensive, coordinated plan to fulfill the government's needs. It also serves as a means for documenting the proposed strategy and obtaining senior level approval of that strategy. Preparation of the AP must be a team approach.

a. The ASR describes the entire acquisition program structure defining the relationship among acquisition phases, decision milestones, solicitations, contract awards, systems engineering, design reviews, contract deliverables, test and evaluation periods, production releases, and operational deployment objectives. It discusses degree of concurrency and phase transitions while the AP is a top level planning document focusing on the istant acquisition and its strategies. To minimize administrative burden, common acquisition strategy paragraphs of the ASR should be used to help prepare, write, and finalize the AP . The AP, incorporating the approved acquisition strategy, may not be approved until the ASR has been approved by the Milestone decision authority. The Acquisition Strategy Report and any associated waivers will be prepared and approved prior to formal solicitation release. By requiring the integration of all the various acquisition facets into one document, the Program Manager can use this as one of his tools to successfully complete the acquisition.

b. The contents of the AP are prescribed by the FAR 7.1 and supplements. Major topics include:

- Background and Objectives
- Product Description
- Performance
- Cost
- Delivery Periods

- Risks
- Milestone Schedule
- Acquisition Sources/Competition
- Contract type, special contract requirements, warranties, etc.
- Source Selection Procedures
- Budgeting and Funding
- Management Information Requirements
- Test and Evaluation
- Logistics
- Government Furnished Property

c. The approved AP reflects the authorized acquisition approach and becomes an active document for the life of the contract. The AP may be necessary for individual contracts throughout the life of the program. It should be updated if significant changes occur in the acquisition strategy or program content.

d. APs as a minimum, must be coordinated through the local competition advocate, small business, and legal. Also, they are normally coordinated through all functional offices. The cover sheet must be signed by the Program Manager, Contracting Officer, Director of Contracts, and either the Program Executive Officer (PEO) or Designated Acquisition Commander, depending on the nature and size/dollar amount of the program. Review/approval levels and procedures are described in the Air Force Federal Acquisition Regulation Supplement (AFFARS) 7.103.

e. For those acquisitions which will use less than full and open competition, a Justification and Approval (J&A) must be prepared. Normally, the J&A, and its cover sheet, the Justification Review Document (JRD), are prepared along with the Acquisition Plan.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: AP preparation usually takes place early during formulation of the acquisition strategy and preparation for the ASP.

b. Exit: Finalization of the AP occurs immediately after the Acquisition Strategy Panel (ASP) and must be done in time to allow for the required approvals.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) Program Management Directive,
(2) Operational Requirements Document,
(3) Acquisition Strategy Panel Minutes,
(4) Source Selection Authority Delegation,
(5) Sources Sought Results from Commerce Business Daily synopsis,
(6) Acquisition Strategy Report.

b. Outputs:

(1) Acquisition Plan,
(2) Cover Sheet,
(3) Coordination Sheet.

10. KEY REFERENCES:

a. Federal Acquisition Regulation 7.1, provides application/content of Acquisition Plans.

b. Defense Federal Acquisition Regulation Supplement 207.3, establishes when acquisition plans are required.

c. Air Force Material Command Federal Acquisition Regulation Supplement/ AFFARS 7.103, establishes required dollar thresholds and programmatic approvals/coordinations of AP.

d. Air Force Acquisition Model (AFAM) dated 3 Jul 92.

e. A Schedule For Acquisition Planning: Initial Acquisition and Strategy Development Through Source Selection (ASC/CYX) dated Jan 93.

11. IMPLEMENTATION TOOLS: The regulations and guidance listed above.

12. PLANNING GUIDANCE:

a. DURATION: The AP can be prepared in 30 days or less, depending on complexity of the acquisition.

b. CONSTRAINTS: The AP, incorporating the approved acquisition strategy, may not be approved until the ASR has been approved by the Milestone decision authority.

c. RESOURCES: Preparation of the AP must be a team approach and include input from all functional areas and the program manager to develop and finalize the AP.

d. LESSONS LEARNED: Write **clear** and **concise** APs. Even though the plan consists of input from many functional specialities, it is ultimately the responsibility of the Program Manager and the Contracting Officer to ensure that when read from cover to cover, it concisely and consistently describes what will be acquired and how the acquisition will be accomplished.

e. BEST PRACTICES:

(1) Work hard to clearly describe the scope of the intended acquisition. The AP language may later be used to determine whether proposed contract changes are within the scope of the acquisition.

(2) Prior to final preparation of the AP all parties involved in the ASP that provided recommended changes, should be invited to an additional discussion/agreement session addressing input for clarification/justification so the final document represents the coordinated position of all involved.

(3) The Acquisition Plan should be drafted prior to the ASP. This draft plan then forms the outline for the briefing.

f. TRAPS: Be sure the AP either incorporates the acquisition decisions made at the ASP or explains major differences from those made at the ASP.

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1. **ELEMENT:** D67, TBS 1.3.2.9 (IFC 93-3)

2. **ELEMENT TITLE:** Conduct Operational Roundtable

3. **ELEMENT OWNER:** HQ AFMC/XRM

4. **ELEMENT STAKEHOLDER(S):**
o Program/Project Manager
o Program Executive Officer (PEO) or Designated Acquisition Commander (DAC)
o Integrated Acquisition Strategy Process (IASP) Secretariat, ASC/CYX
o HQ AFMC/XRMP
o Functional Home Offices

5. **REQUIREMENT:** AFMC Pamphlet 800-7, 20 Nov 92, Part II

6. **PURPOSE/OBJECTIVE:** The Operational Roundtable is a working group or a series of working groups designed to develop and "harmonize " (read as coordinate) the detailed functional plans and Milestone directed documentation. (Functional plans include those documents not reviewed directly by the Milestone Decision Authority (MDA), but which might be used as supporting material. They also include those documents used by the Program/Project office to actually execute the project.)

7. **DESCRIPTION:** This is the "write the plans" portion of the IASP. (This is probably better titled "finalize the plans" portion of the IASP. The majority of the plans will come to the Operational Roundtable in draft form.) The meeting is chaired by the Program/Project office . Participants are selected by the Tactical Roundtable and will include Program/Project office functional experts as well as functional experts with recent experience in drafting functional plans. (An example might be to get some functional experts from the LANTIRN FMS project for the Saudi F-15 sale to assist with the development of the required documentation for a potential JDAM sale to Korea.)

Another key part of the Operational Roundtable is to ensure everyone is "singing from the same sheet of music." The words in AFMC pamphlet 800-7 are "facilitate completeness and harmony of the documentation and its timely approval." This "harmony" refers not only to an agreement between the participants as to the content of each of the documents but an agreement in the content between each of the documents. This step alone makes the Operational Roundtable a very worthwhile activity. If the Program/Project team elects not to go through an Operational Roundtable, they should at least develop some kind of process to ensure that all the functional plans and required Milestone documentation are consistent with one another.

The Operational Roundtable participants are not expected to create the documents from scratch. Preliminary, draft, or partially developed functional plans and required Milestone documents should be brought to the table. A list of these plans and documents should include but is not limited to:

1) Acquisition Program Baseline (APB)
2) Test and Evaluation Master Plan (TEMP)
3) Integrated Logistics Support Plan (ILSP)
4) Computer Resources Life Cycle Management Plan (CRLCMP)
5) Integrated Weapons System Master Plan (IWSP)
6) Security Master Plan (SMP)
7) Systems Engineering Master Schedule (SEMS)
8) Systems Engineering Management Plan (SEMP)
9) Program Protection Plan (PPP)
10) Risk Management Plan (RMP)
11) Nuclear Certification Plan (NCP) (if necessary)
12) Cost Analysis Requirements Document (CARD)

13) Certain nonmajor programs may use a Program Management Plan (PMP) to replace all the functional plans, but the PMP is generally not used on major programs anymore.
Along with this list of plans and documents to be "harmonized" by the Operational Roundtable members, the group will need the documents which have already been "approved." Such as :

1) Acquisition Plan (AP)
2) Integrated Program Summary (IPS)(and its annexes)
3) Operational Requirements Document (ORD)
4) Mission Needs Statement (MNS)
5) Milestone 0 Acquisition Decision Memorandum (ADM)
6) Program Management Directive (PMD).
7) Cost and Operational Effectiveness Analysis Report (COEA)
8) Meeting minutes from:
   - ASP and previous Roundtables
   - Summit meetings (if they have been held)

8. ENTRANCE/EXIT CRITERIA:

a) Entrance_criteria to initiate an Operational Roundtable are the completion of the Acquisition Strategy Panel (ASP) and the availability of the attendees. A time for this Roundtable should be set at the Tactical Roundtable.

b) Exit criteria for this Roundtable includes the lofty goal of producing "a coherent, integrated program strategy supported by a consistent, harmonious set of approved implementation documents...and the program should be ready for implementation." Boiled down, the Operational Roundtable needs to be able to answer "yes" to the following questions:

1) Have we thoroughly examined the minimum set of alternative concepts as directed in the ADM?
2) Does the COEA report address the deficiency as stated in the MNS?
3) Are the findings in the COEA report reflected in the ORD?
4) Does the COEA report and the ORD use the same System Threat Assessment?
5) Is the selected acquisition strategy consistent with the COEA findings and the ORD?
6) Are the Acquisition Plan (AP)and the Acquisition Strategy Report (ASR) consistent with one another?
7) Is the Acquisition Program Baseline (APB) consistent with the COEA, ORD, and the ASR?
8) Are we (the User) willing to cancel the program if we breach any of the thresholds stated in the baseline?
9) Is the TEMP consistent with the COEA, ORD, ASR, and APB?
10) Have long lead Test and Evaluation resources been identified and is there a plan to put them in place?
11) Are the Measures of Effectiveness (MOE), Measures of Outcome (MOO), and Measures of Performance (MOP) all addressed in the TEMP? Are they testable (or at least "simulatable")?
12) Are the MOE consistent with those in the COEA?
13) Are the assumptions in the Cost Analysis Requirements Document (CARD) same set of assumptions as used in the COEA and the program/project office cost estimates?
14) Does the SEMS or SEMP mesh with the APB and the selected acquisition strategy?
15) Does the SEMP mesh with the ILSP and the selected acquisition strategy?

9. KEY INPUTS AND OUTPUTS:

a. Inputs include the documents listed in the description portion of this data sheet (in various stages of preparation). Particular tasks that should have been completed in order to conduct a successful Operational Roundtable include:

1) Acquisition Strategy Panel (ASP) completion in order to ensure that the core documentation and basic strategy is consistent with the top-down direction provided in the Strategic Roundtable. (D57)

2) Most current version of the System Threat Assessment (STAR or STA) to make sure the project documentation is consistent with what DIA is going to be providing the Milestone Decision Authority. (D56).

3) You also need to have back (for ACAT I or potential ACAT I programs) the comments back from the USD(A) review of the project's Acquisition Strategy Report (ASR) and Acquisition Plan (Acq Plan). (B17).

b. Output is a consistent plan for executing the next program phase which has been recorded in a set of functional plans and documents which are consistent with one another. (D68).

10. KEY REFERENCES: Currently the only references which discuss the methods for accomplishing an Operational Roundtable are:

o AFMC Pamphlet 800-7 dated 20 November 1992), Integrated Acquisition Strategy Process. (This pamphlet also lists a number of references, but these references are more to be used by the roundtable participants in preparing the documentation and plans rather than on how or what the roundtable process is all about.)

o ASC/CC Letter dated 22 September 1992, Interim Acquisition Strategy Panel(ASP) Policy. (This policy letter gives direction for those programs might be trapped between the ASP process and the institutionalizing of the IASP.)

11. IMPLEMENTATION TOOLS: None identified. (The IASP and Roundtable concept is a relatively recent development. No program/project has to date accomplished an Operational Roundtable.)

12. PLANNING GUIDANCE:

A. DURATION:

- For an ACAT I effort, the original concept for the Operational Roundtable called for 6-8 weeks. This can be done through a series of meetings for integration with individual efforts in between times or by setting up an offsite type of environment.
- ACATs II-IV durations would depend on how many functional plans and documents are required. If the project opts to use a single Program Management Plan (PMP), this process could perhaps be cut in half.

For any type of program, the duration is going to be determined by how complete and consistent the plans and documentation are when submitted to the Operational Roundtable. If the Program/Project office did an exceptional job in preparing the "preliminary" documents , then the work of the Roundtable group will be relatively straightforward and could probably be accomplished in a single week.

- Again, an Operational Roundtable has yet to be accomplished so there is no real world experience.

B. CONSTRAINTS:

- These will vary greatly depending on the program/project, but should be provided by the ASP and the members of the Tactical Roundtable. It is the responsibility of the program/project manager to provide a list of all these constraints to the Operational Roundtable team. The primary constraint is scheduling the right people to make them available for the 6-8 weeks needed to complete the activity. It is very important to have all the same individuals work this activity from start to finish.

C. RESOURCES:

- The membership on the Operational Roundtable is determined by the participants of the Tactical Roundtable.
- Leader to be provided by the Program/Project office.
- Most of the members will consist of the senior functional experts in the Program/project office.

- Most of the members will consist of the senior functional experts in the Program/project office.
- Functional experts with recent experience in developing the functional plans on other projects.
- Other, more specific resources, will be listed as they are discovered through experience with the process.

D. LESSONS LEARNED:

- Do not rush into this particular Roundtable. During this phase of the IASP, all the gory details that the team is going to be forced to execute over the next phase (if not the entire life) of the project are developed. Let the "experts" help to "harmonize" the documentation only after the team is satisfied that it can live with what it has provided in the preliminary documents. Remember, the role of the Operational Roundtable is to ensure the consistency of the documentation...their task is not do an executability study. If the Operational Roundtable is provided a draft document that describes activities the project cannot possibly hope to accomplish, their job would be to ensure that this unexecutable activity is reflected (as appropriate) in all the related documentation. What is being said here is that this group's role is not to say that what is described to them is not executable--but rather, their task is to make sure that all the documentation reflects a sense of unity. The point to take away is that if this group is provided good raw materials, they should provide a good final product whose parts are consistent with one another.

E. BEST PRACTICES:

- When the Program/Project office begins to put together the Milestone documentation and functional plans, ensure each draft document is reviewed for consistency with the other documents and with the guidance you have already been provided. (It sounds almost insultingly common sensical, but it hasn't been done on a regular basis.) Allow time for "In-House Harmonization." It's better to develop a phased in approach that calls for the documents to be completed in sequence to allow time for the authors to review the documents for consistency which have already been completed.

F. TRAPS:

- Do not grab the latest copy of a particular functional plan and use it as the sole source for creating the same type of plan for your project. (i.e. If writing a Test and Evaluation Master Plan (TEMP) for the AIM -9X, don't take the latest version of the JDAM I TEMP and do some kind of word search that changes all references to JDAM I to AIM-9X.)
- Top down directed schedules may not allow adequate time to accomplish all the required work in a quality manner. Be sure you notify senior leadership when such problems arise.

1. **ELEMENT:** D68, TBS 1.3.2.1^ (IFC 93-3)

2. ELEMENT TITLE: Complete Milestone I Documents and Functional Plans

3. ELEMENT OWNER(S): Project Manager

4. ELEMENT STAKEHOLDER(S): HQ USAF/XOR , OSD/PA&E, SAF/AQX, SAE, Service Secretary, Operating Command, Implementing Command, Aeronautical Systems Centers (ASC) Functional Organizations, ASC/YX, ASC/CYX, HQ AFMC/XRMP

5. REQUIREMENT

a. DoD Directive 5000.1, Defense Acquisition, 23 Feb 91, Part 1. This regulation contains information concerning acquisition strategies and program plans.

b. DoD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 1991, Parts 2 and 5. This regulation contains information on the Milestone (MS) Review Documentation Concept, Risk Management, and Acquisition Category (ACAT) Milestone (MS) Documentation Requirements.

c. DoD 5000.2-M, Defense Acquisition Management and Documentation Reports, 23 Feb 91. This manual contains procedures and formats to be used to prepare MS documentation.

6. PURPOSE/OBJECTIVE:

a. Purpose: Serves as the primary means for the project team to provide the Milestone Decision Authority (MDA) with the information needed to make an MS decision.

b. Objective: Ensure the documents are finalized in preparation for the MS I documentation review (B22).

7. DESCRIPTION:

a. The draft documents and plans (D60) are updated and completed by the project office with selected functional experts who have current applicable experience. The update may incorporate the Operational Roundtable (D67) recommendations. The documentation is limited to that required to support the purpose of the MS review and to that required by statute. The scope and formality of the documentation required to support the purpose of the review depends on the project Acquisition Category (ACAT).

b. Documentation developed and submitted in support of an MS review can be grouped into three general categories -- requirements documents, the Integrated Program Summary (IPS) with annexes, and stand-alone documents. The requirements documents provide information for decision makers on projected mission needs. The IPS with annexes and the stand-alone documents provide information needed to develop the Integrated Program Assessment (IPA) (A21) so that the MDA may make an MS decision.

c. DoD Manual 5000.2M includes formats for the major items of documentation. These formats are intended to be used for the documentation and reporting requirements of ACAT I programs and for ACAT II, III, and IV programs as required by statute. At the discretion of the MDA, these same formats MAY be used for non-statutory ACAT II, III, and IV program requirements, tailored to the specifics of the program.

d. The Operating MAJCOM/CC uses the results of the Concept Exploration (CE) Studies and the Cost and Operationsl Effectiveness Analysis (COEA) to justify and select a preferred alternative.

Working with the acquisition community, a briefing is prepared to gain CSAF and MDA concept demonstration approval. After establishing an Air Force position, the user, implementer, and the PEO (or Service Acquisition Executive (SAE) for smaller programs) prepare the documents required for the MS I review (Concept Demonstration Approval). The PMD (B10) should have assigned tasking for the applicable documents. The number and types of documents and amount of detail will vary by the ACAT level. A Defense Acquisition Board (DAB) program requires approximately ten major documents. SAF/AQ approves acqusition program documents before sending them to the Joint Requirements Oversight Council (JROC) and the DAB. The HQ USAF-approved Operational Requirements Document (ORD) is the basis for all follow-on program documentation.

Table E-3 Documents required for Milestone I Decision Review
(A narrative explanation of MS I Documents may be found in D60)

MS I DOCUMENTS (format in DoD 5000.2-M)	***ACAT LEVEL***			
	I	II	III	IV
Operational Requirements Document (ORD)	X	X	X	X
System Threat Assessment Report (STAR)	X			
System Threat Assessment (STA)		X	X	X
Integrated Program Summary (IPS)	X	X	X	X
Program Life Cycle Cost Estimate	X	X	X	X
Acquisition Program Baseline	X	X	X	X
Test & Evaluation Master Plan (TEMP)	X	X	X	X
Component Cost Analysis (CCA)	X	X	X	X
Cost & Operational Effectiveness Analysis (COEA)	X	X	X	X
Defense Intelligence Agency (DIA) Report	O			
Intelligence Report		O	O	
Joint Requirements Oversight Council (JROC) Report	O			
Integrated Program Assessment (IPA)	O	O	O	O
Independent Cost Estimate (ICE) Report	O			
Acquisition Decision Memorandum (ADM)	O	O	O	O

X: Prepared by Military Dept/PM O: Prepared by OSD Staff

Table 1 - Documents required for Milestone I Decision Review
(A narrative explanation of MS I Documents may be found in D60)

e. Integrated Program Summary (IPS). The IPS will be addressed more thoroughly here, since it is the primary decision document used to facilitate top-level acquisition MS decision making and is not contained in other data sheets. The purpose of the IPS is to provide a succinct integrated picture of the program status for use by the MDA, supporting, and review forums. It highlights the status of critical areas and plans for future acquisition. At MS I, the IPS shall summarize the results of Phase 0, Concept Exploration and Definition. When writing the IPS the project team needs to identify and provide the following information:

(a) The most promising concept(s) to be carried into Phase I, Demonstration and Validation, for demonstration and further development, and the reasons for elimination of alternative concepts.

(b) The risk reduction efforts to be accomplished during Phase I.

(c) The trade-off decisions to be made for MS I, and recommended to be made for MS II, by the MDA.

(d) The design alternatives and trade-offs to be evaluated during Phase I.

(e) A summary of the program life-cycle cost estimate, independent cost estimate, affordability assessment and proposed concept baseline.

(f) The DoD Component's proposed project acquisition strategy and any proposed waivers.

(g) The Acquisition Strategy Report (ASR) discusses the basic acquisition strategy being pursued. As part of the IPS, it summarizes the entire planned program structure from Demonstration

and Validation through Production and Deployment. Requests for Proposals (RFPs) for the Dem/Val phase may not be released until the MDA has approved the ASR. The ASR is not to be confused with the Acquisition Plan which only describes the acquisition strategy for the upcoming phase. The ASR should discuss the transition of critical technologies in technology demonstration programs to prototypes and engineering development models, plans for reducing risk, nondevelopment items, evolutionary acquisition, and preplanned product improvements in the context of the operational requirements and the management approach to the acquisition.

(h) The IPS is a statutorily imposed requirement prepared by the project manager. The final IPS approved by the SAE will be submitted to the DAB Executive Secretary no later than 10 working days prior to the DAB Committee review.

(i) The IPS concept will be used by the DoD Component MDA for ACAT IC, II, III and IV programs; however, the documentation content should be appropriately tailored for ACAT II, III and IV programs. DoD 5000.2M, Part 4, contains preparation procedures and format (D58).

f. Functional Plans. In addition to the documents required for MS reviews, there are a number of functional plans used by the project team during the execution of each acquisition phase. Some of these documents are not reviewed directly by the MDA, but may be used as supporting material. They include those documents used by the project office to actually execute the project. Scope and formality of these plans vary by project phase; formats for some may be specified by the Air Force.

Table E-4 Milestone I Functional Plans
(A narrative explanation of functional plans may be found in D60)

FUNCTIONAL PLANS
Integrated Weapon System Master Plan (IWSMP)
System Engineering Master Plan (SEMP)
Systems Engineering Master Schedule (SEMS)
Risk Management Plan (RMP)
Program Protection Plan (PPP)
Integrated Logistics Support Plan (ILSP)
Pollution Prevention Action Plan (PPAP)
Nuclear Certification Plan (NCP) (If necessary)
Cost Analysis Requirements Description (CARD)
Program Management Plan (PMP) (May be used on non-major programs, generally not used on major programs)
System Security Master Plan (SSMP)
Computer Ressources Life Cycle Management Plan (CRLCMP)

8. ENTRANCE/EXIT CRITERIA:

a. Entance: This element starts when the project team has received final input from Rountable III (D67) participants.

b. Exit: This element is complete when the Roundtable III final inputs have been incorporated and approval to forward documents to the Air Force has been received (B22).

(1) Based upon the inputs from Roundtable III, the ASC finalized MS Documents and functional plans go forward for a documentation review (B22). This documentation review serves as the vehicle for identifying and reviewing any major questions raised by the draft documentation (not yet approved by the Air Force Acquisition Executive (AFAE)) and any new program developments since the planning meeting.

(2) The finalized plans are provided to the data base (D73) where a centrally managed

and controlled storage area is provided for validated project data. This database contains updated data used to describe products and processes and provides the project team and MDA with current and historical information in support of an MS decision.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The MS 0 ADM and Program Management Directive (PMD) (B10) are key documentation inputs. The PMD directs Phase 0, development of the COEA and the ORD, and identifies the required documentation and schedule considerations for the next MS. The key inputs for the IPS are the Mission Need Statement (MNS); the results of the Concept Exploration phase, and the ORD.

b. Outputs: The key output is the documentation/information needed by the MDA to determine if the results of Phase 0 warrant establishing a new acquisition program and approval to proceed with Demonstration and Validation (Phase I).

10. KEY REFERENCES:

a. AF Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures, para 1.4, 16 Feb 93. This instruction provides information on concept studies, COEA, and MS I Documentation.

b. HQ Operating Instruction 800-2 (draft), Policy and Guidance for Preparing PMDs, para. IV., 1 Jan 93. This instruction contains information on requirements/program documents, i..e., MNS, ORD, COEA, TEMP, STAR, PPP, APB.

c. AFMC Pamphlet 800-7, Integrated Acquisition Strategy Process, Section A, Para 9, 20 Nov 92. This pamphlet contains information about the Operational Roundtable.

d. ASR Guide, DSMC, para. 4.4.2, Jul 84. This guide contains lessons learned for the approval process.

11. IMPLEMENTATION TOOLS:

a. In document preparation, software tools, such as some of the Defense Systems Management College (DSMC) models, are helpful to the project team for certain specialized tasks. The competition evaluation module is used in evaluating alternative acquisition strategies.

b. DSMC's procurement strategy model (PSM) works by comparing the proposed project to past projects stored in a database. It identifies and helps eliminate the less attractive strategies and produces a short list of recommended strategies that have the best chance for meeting the project's Initial Operating Capability (IOC) and cost constraints. The model also allows the project team to examine the effects of changes to the parameters that have been inputed to describe the project. For more information on this software package, contact PMSS Directorate/DRI-S, Ft Belvoir, VA 22060-5426, DSN 354-4795/5783.

c. The Consolidated Acquisition Reporting System (CARS) provides an automated tool for the preparation of the Selected Acquisition Reports, Defense Acquisition Executive Summary and the APB which are all used to support the MS Decision Review Process.

d. Systems 200, Acquisition Planning and Analysis, is a course offered through The Air Force Institute of Technology (AFIT). This course has a Program Documentation Module which provides an overview of the regulatory requirements for completing the ASR.

e. A Computer Based Training (CBT) software package is available from ASC/ALL, 513-257-1995, for use in developing the ILSP.

f. The database is the project's repository of information compiled in a central location. The data contained in the database supports applicable statutory imposed requirements, and meets the information needs of the MDA, supporting, and review forums. It is used by the project team to provide an audit trail that starts with the User's initial request. It is updated at key points in the life of the project (D15, D31, D44, D49, D73).

g. The ASC/YX Integrated Flow Chart (IFC) and Process Guide is an important implementation tool for the project team to use.

12. PLANNING GUIDANCE:

a. DURATION:

(1) MS documents may require anywhere from 8 weeks to 8 months to prepare and finalize from the time of tasking. Factors such as priority, complexity and coordination cycle or level impact the duration time. Draft MS documents are due to OSD 59 days prior to the DAB. The MS documentation review is 44 days prior to the DAB and final documents are due to OSD 24 days before the DAB. The final documents for AFSARC reviews must be finalized by the date of the AFSARC.

(2) At least 2 months is required to prepare the draft IPS/ASR for the documentation review. Much of the stand-alone documentation is prepared in parallel. The final IPS/ASR is submitted to the DAB Executive Secretary NLT 10 working days prior to the DAB Committee review.

b. CONSTRAINTS:

(1) Restrictions regarding the time by which all documents must be completed.
(2) Restrictions on the availability of needed project staff.
(3) Restrictions on the availability of equipment or facilities needed to complete the documentation package.
(4) Identification of other organizations/individuals with which you must interface.
(5) Restrictions regarding the proper format in which the documents must be produced.

c. RESOURCES:

(a) Strategy and documents Development Team (Technical Manager, Business Manager, Logistician, Contracting Officer, User Representative and a representative from HQ USAF/XOR to address requirements, a representative from the Test community, Special Consultants, Communicator, Administrative Personnel).
(b) Two man months (typically) is required to prepare the IPS/ASR and usually in parallel with the remaining documentation.

d. LESSONS LEARNED: (Taken from DSMC ASR Guide, see key references)

(1) As early as possible in the approval process, Project Managers should identify project opponents, especially those with veto power. Every reasonable effort should be made to enlist their support through such methods as special briefings or inclusion on project team advisory panels.
(2) Project teams should thoroughly address risk assessment. There is evidence to suggest that this is the most important review/approval consideration in the acquisition strategy.
(3) Project teams should determine if there are management issues that should be included, in addition to the required format items. These current topics can be obtained from the appropriate development command office of primary responsibility.
(4) Project teams should start early and keep an auditable document trail. They should include any significant guidance they received, both written and oral.
(5) Project teams should ensure that their documents are kept current by using knowledgeable, qualified people to maintain them and by using modern word procesing equipment to

enable rapid updating.

e. BEST PRACTICES:

(1) In developing the required documentation, project teams should keep them as brief as possible to depict relevant information, without adding levels of detail exceeding that required. For nonmajor (ACAT II through IV) programs, documents such as the ORD and COEA may be tailored to avoid an unnecessary burden on the preparers. The designated MDA will direct the tailoring of documentation and, if proper, waive specific documenation.

(2) The project manager must collaborate tailoring with the PEO; provide a continuity of advisors/approvers; have strategy before plans; surround himself with functional experts; and encourage disciplined team building/consensus.

(3) When preparing MS documents project teams must review and affirm user-stated needs, and the adequacy of program development efforts to satisfy those needs in a timely, cost-effective manner.

(4) The Project teams must maintain close liaison with other agencies to ensure their preparation activities do not impede project planned dates.

(5) To ensure all requirement documents are traceable and integrated, project teams need to use the document numbering system described in AF Instruction 10-601, Mission Needs and Opertional Requirements Guidance and Procedures, Atchs 4, 5, and 6, 16 Feb 93.

(6) It is essential that the COEA activity be documented and archived for future reference and use as the starting point for subsequent COEAs for the Milestone II data package.

(7) Point of Contact for MS documents is SAF/AQXA, DSN 225-5973.

f. TRAPS: Constrain plan writers - do not permit each function or discipline to create its own ground rules and generate unconstrained plans. The end result of this kind of approach is a mass of unrelated data, which at some point (usually critical to the schedule) has to be restored and repackaged.

1. **ELEMENT:** D69, TBS 1.3.3.5 (IFC 93-3)

2. **ELEMENT TITLE:** Release Request for Proposal (RFP)

3. **ELEMENT OWNER(S):** Contracting Activity PK

4. **ELEMENT STAKEHOLDER(S):** Program/Project Manager (PM), Buying Office Contracting Office, Program/Project Team (Cadre), Functional Office Representatives, Legal Office, Local, Center and Headquarters' Business and Contract Clearance Offices, Source Selection Authority (SSA), Designated Acquisition Commander (DAC)/Program Executive Officer (PEO) (if identified), Undersecretary of Defense for Acquisition (USD(A)).

5. **REQUIREMENT:**

a. FAR 15.408 -- Provides policy and procedures on issuing solicitations
b. AFMC FAR Sup 5315.408 -- Provides policy and procedures on issuing solicitations
c. AFFARS 5301.9007 -- Provides policy and procedures on solicitation reviews
d. AFMC FAR Sup 5301.9007 -- Provides policy and procedures on solicitation reviews
e. AFFARS 5301.601-95(a) -- Provides policy and procedures on legal reviews
f. AFMC FAR Sup 5301.601-94 -- Provides policy and procedures on legal reviews
g. AFMCR 70-7 -- Establishes criteria for conducting Solicitation Review Boards (SRBs)

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this element is to release an RFP from which industry can prepare and submit a proposal.

b. Objectives: The objective is to have the RFP proceed through its review/approval process, obtain approval for its release and issue it to industry

7. **DESCRIPTION:**

a. After the Draft RFP has been finalized into the final RFP (D64), there is a review/approval process the RFP must complete prior to its release. The length and complexity of the review process/approval depends on the dollar value and the classification, (i.e. Major/Selected Program, Other Program, Other Contracting) of the program/project. In addition to the review/approval requirements listed in ASC/PK Policy Letter 93-004, 27 Jan 93, the review/approval process can include, based on the particular action, a review by:

- a Solicitation Review Board (SRB) (AFMCR 70-7)
- the Source Selection Management Group (SSMG) (if competitive) (AFR 70-15/-30),
- Source Selection Advisory Council (SSAC)/SSA approval of the RFP release (if competitive),
- Assistant Secretary of the Air Force for Acquisition (ASAF(A)) (B17) (ACAT I programs/projects)
- USD(A) (for ACAT I programs/projects) (A15) and
- A signed PEO (if assigned) release letter.

These reviews/approvals are called out in the above Requirements section documents. During this review process, the reviewers examine not only the RFP document but also the file accompanying the RFP, to ensure pertinent documentation, (i.e. program synopsis in the Commerce Business Daily, approved acquisition plan, Justification and Approval (J&A) for noncompetitive programs, Source Selection Plan, etc.) has been completed and included. Subsequent to the review/approval process described above, the RFP may be released.

b. The length of time the RFP is released to industry for proposal preparation is determined by the complexity of the acquisition. Other factors might include whether a draft RFP was used and whether the RFP changed substantially from draft to final. The time should not be less than 45 days and normally 60 days. (These times are ASC standards and can be adjusted accordingly depending on the complexity of the acquisition.) During that time, industry prepares its proposals which will be used as a basis from which to award a contract, either by the formal source selection process for competitive acquisitions or by the negotiation process for noncompetitive acquisitions. This activity then flows into the effort described in D70.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The RFP cannot be released until the applicable reviews mentioned above have occurred and the Source Selection Plan (if required) has been approved and the Acquisition Plan has been reviewed and approval to release the RFP has been given.

b. Exit: Criteria for exiting this action is when the RFP has been released to industry for an offeror to prepare a proposal in response to the RFP and government personnel have been notified to cease discussions with all offerors and to direct any queries to the Contracting Officer (D70).

9. KEY INPUTS AND OUTPUTS:

a. Input: The inputs are the applicable RFP compliance and programmatic reviews listed in Paragraph 7 above required prior to the RFP release.

b. Output: The output is the formal RFP released to industry.

10. KEY REFERENCES:

a ASC/CYX's "A Schedule for Acquisition Planning: Initial Acquisition and Strategy Development Through Source Selection" contains a schedule on the timing of the review process and release of the RFP.

b. HQ AFSC Request for Proposal Process Guide provides guidance on review and release of the RFP.

c. ASC FAR Sup 5315.408 -- Provides policy and procedures on issuing solicitations .

d. ASC FAR Sup 5301.9007 -- Provides policy and procedures on solicitation reviews.

e. ASC FAR Sup 5301.601-94(b) -- Provides policy and procedures on legal reviews.

f. DOD Directive 5000.2 -- Defense Acquisition Management Policies and Procedures, Change 1, 10 Mar 93, Part 2.C.2 provides guidance on solicitation reviews prior to release for Acquisition Category I programs.

g. AFR 70-15, Formal Source Selection for Major Acquisitions (AFFARS Appendix AA) - contains requirements for pre-source selection reviews and approvals.

h. AFR 70-30, Streamlined Source Selection Procedures (AFFARS Appendix BB) - contains requirements for presource selection reviews and approvals.

11. IMPLEMENTATION TOOLS: ASC/PKC has a review checklist which can be used to ensure the RFP file is complete and the RFP is adequately prepared and ready to be reviewed. The HQ AFSC RFP Process Guide listed above can also be reviewed prior to the review cycle to ensure its guidance is included in the RFP.

12. PLANNING GUIDANCE:

a. DURATION: This element is Program/Project dependent, however, the ASC/CYX "Schedule for Acquisition Planning" contains a generic time schedule for the events leading up to and issuing the RFP. The schedule guide shows an average time of 60 days from when the formal RFP is complete

until its release. It also includes another 60 days as the average time for offerors to prepare and submit their proposals. This time is also dependent on the Program/Project.

b. CONSTRAINTS: The source selection plan and the acquisition plan need to be approved prior to release of the RFP.

c. RESOURCES: The personnel normally required for issuing the RFP are the PM and the Contracts representative. All of the other functional representatives have already made their input to the document; however, additional input may be required if there are any changes required as a result of the review/approval process. The time required for the resources is, again, dollar value or program/project dependent. The time and resources will be greater for a high dollar and/or ACAT I program/project than it will for a lower dollar/designated program since the ACAT I program/project RFP will be subject to more reviews/approvals.

d. LESSONS LEARNED:

(1) Allow adequate time in the planning schedule for this task since most of the review/approval process is not controlled by the program/project office and usually takes longer than expected. This can be especially true if it is an ACAT I program/project which will have to go to the ASAF(A) (B17) and USD(A) (A15). Nominal times for ASC's RFP activities are listed in the Procurement Management System (PMS) (ASC/PK contract management data base) (DSN 785-7450).

(2) Allow adequate time (45 to 60 days) for the offeror to prepare an adequate proposal from which to evaluate during source selection or on which to base negotiations in a noncompetitive acquisition. If the offeror is not allowed sufficient time and submits a proposal which is not adequate, the time spent going back and asking questions concerning its deficiencies or having the proposal rewritten can be greater than allowing adequate time initially. Often times, industry prepares its proposal based on the Draft RFP and uses the formal RFP to update and give a final check to the proposal.

(3) Involve the Product Center PK RFP reviewers (ASC/PKC) as part of the RFP team. By the reviewer gaining knowledge of the program/project early on, time will be saved when it is time for the RFP to be reviewed.

(4) ASC/CYX has a lessons learned data base including RFP and source selection lessons learned which they periodically update.

e. BEST PRACTICES:

(1) In the past, it was usually the PM and a Contracts representative who were involved in issuing the RFP. Using the Independent Product Team (IPT) approach in getting the RFP reviewed and issued is more beneficial. As members of the team, rather than individuals, they have been working for some time in preparing the RFP and should know the whole document and may offer constructive advice to disciplines other than their own. They will also be better able to tie together inter discipline activities. They should continue to work together as a team for the PM whenever he needs their assistance in getting the document issued.

(2) The RFP team is responsible for the timeliness and quality of the RFP. Guard against relying too much on reviews and too little upon building in quality during preparation. Include all the required information at the beginning. It will take less time in the review process if it is done right initially.

(3) Sometimes, depending on the acquisition, Roundtable III of the Integrated Acquisition Strategy Process (IASP), can take the place of, or be combined with, the Solicitation Review Board (SRB) (see paragraph 5, Requirements). If an SRB reviews the Draft RFP, that review can serve as the requirement for an SRB on the formal RFP if no major changes have occurred during that time.

(4) If, during offeror proposal preparation time, the offeror(s) request additional time for them to prepare their proposal, weigh the request carefully. If additional time can be allowed without jeopardizing the program/project schedule, the time should probably be allowed. It could save time in the long run by not having to ask questions due to an inadequate proposal. This time extension, if granted, applies to all offerors.

(5) When timelines are tight, use of an incremental review process could save time. One review group may begin prior to completion by another group.

(6) Have continuity of RFP team members throughout the RFP preparation. Select the members so they are available throughout the RFP preparation process and also serve as members of the source selection team.

(7) Going to an all electronic RFP and proposal submittal will greatly save time. Some Centers have already initiated this activity.

f. **TRAPS:** You must research and determine which reviews and approvals are required for your acquisition and complete all of them or release of your RFP could be delayed.

1. ELEMENT: D70, TBS 1.3.3.6 (IFC 93-3)

2. ELEMENT TITLE: Conduct Source Selection (Competitive)/Conduct Negotiations (NonCompetitive)

3. ELEMENT OWNERS: Project/Program Offices

4. ELEMENT STAKEHOLDERS: ASC/PK, CY, EN, AL, and FM

5. REQUIREMENTS:

a. Federal Acquisition Regulation (FAR) Subpart 6.3, Other than Full and Open Competition, and applicable supplements. FAR Subpart 6.3 provides policies and procedures, and identifies statutory authorities for contracting without providing for full and open competition.

b. FAR Part 15, Contracting By Negotiation, and applicable supplements. FAR Part 15 provides policies and procedures for contracting for supplies and services by negotiation.

c. AF Regulation (AFR) 70-15/AFFARS Appendix AA, 27 Apr 88, Formal Source Selection for Major Acquisitions, and applicable supplements. AFR 70-15 provides policies and procedures for soliciting and evaluating offeror's proposals for major acquisitions, and implements FAR Subpart 15.6, Source Selection for Major Acquisitions.

d. AFR 70-30/AFFARS Appendix BB, 27 Apr 88, Streamlined Source Selection Procedures, and applicable supplements. AFR 70-30 provides streamlined procedures for source selections which fall below the dollar thresholds or are outside the scope of competitive negotiated procurements described in AFR 70-15.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose of conducting a source selection for a competitive acquisition is to evaluate industry proposals received in response to a Request for Proposal (RFP), and as a result of the evaluation, determine which contractor's proposal best meets government requirements at a fair and reasonable price. In a noncompetitive acquisition, negotiations are conducted with the offeror to reach agreement on all terms and conditions of the contract, and to arrive at a price that is both fair and reasonable.

b. Objectives: The objective of the source selection process is to award a contract to the offeror who, based on their proposal, is best qualified to fulfill the government's requirements at a fair and reasonable price. The objective of conducting negotiations in a noncompetitive acquisition is to reach agreement on all aspects of the contract including terms, conditions, and pricing arrangements.

7. DESCRIPTION:

a. The source selection process begins with the release of an RFP to industry after approval is received from the SSA. At the time the RFP is released, a notice indicating a source selection action is in process must be provided to all contractors receiving the RFP, and to all participants on the source selection team. The chairperson of the Source Selection Advisory Council (SSAC) is the individual responsible for the release of the notice on major acquisitions, and for less-than-major acquisitions, the Contracting Officer is responsible for ensuring the notice of the source selection action is accomplished. The notice identifies the system, subsystem, or project involved, the anticipated period of the source selection, and includes a statement cautioning participating offerors that contacts with source selection team members are not allowed. Members of the source selection team and all potential offerors must be informed that the Contracting Officer is the only individual authorized to contact potential offerors, and the SSA is the only person authorized to release information regarding an ongoing source selection.

b. With the formal release of the RFP to industry, the project team must be prepared to answer questions that may arise in regard to the specifications or other nontechnical requirements of the solicitation. For projects with highly complex specifications, the project team may choose to conduct a preproposal conference after the RFP has been released, but prior to receipt of contractor proposals. Generally, the purpose of the conference is to explain or clarify complicated requirements, and allow contractors an opportunity to ask questions in regard to the solicitation. The Contracting Officer is responsible for ensuring that all prospective offerors receive timely notification of the conference, that all prospective offerors receive the same information concerning the acquisition, that a complete record of the conference is prepared, and that all prospective offerors receive a copy of that record. The Contracting Officer must also caution all prospective offerors that any remarks or explanations given at the conference shall not qualify the terms of the RFP, and that the terms of the solicitiation and specifications remain unchanged unless the RFP is amended in writing. Even if a preproposal conference is not conducted for a solicitation, questions and concerns raised by prospective offerors must still be addressed. The project team must ensure that any additional information provided to one offeror, as a result of questions or concerns raised, must also be provided to all prospective offerors. All questions received from contractors must be in writing, and based on the questions received, it may be necessary for the project team to amend the RFP. Amendments would be required to identify changes in quantity, specifications, or delivery schedules, to correct defects or ambiguities, or to extend the closing date for receipt of proposals from contractors. Any amendments issued must be in writing to all contractors who received the RFP.

c. Prior to the receipt of contractor proposals, the acquisition team must establish evaluation standards, and ensure the standards are approved before the evaluation of proposals can begin. The evaluation standards designate the minimum performance or compliance with requirements that a proposal must meet to be considered acceptable to the government. Contractor proposals are evaluated against the standards to determine the level of compliance with the requirements. The evaluation standards must be developed as a stand -alone document, and the standards are not to be included in either the request for proposal or source selection plan. The evaluation standards must be marked as "Source Selection Information/For Official Use Only - Source Selection Sensitive," and treated accordingly.

d. The actual evaluation process begins with the receipt of contractor proposals in a secure environment by the project office. As proposals are received, the date and time of receipt is recorded on each proposal. Each proposal must be received by the date and time specified in the RFP, or the proposal will be deemed ineligible for consideration for award (see Federal Acquisition Regulation, Part 15, Subpart 15.4, paragraph 15.412(c) for exceptions to acceptance of late submittals). Upon receipt of a late proposal, the Contracting Officer must notify the offeror that the proposal is ineligible for consideration due to late arrival. After contract award, the late proposal will be filed with any other unsuccessful proposals evaluated by the project office .

e. Contractor proposals that are submitted in accordance with the date and time specified in the RFP are usually evaluated twice by the source selection team. An initial evaluation is conducted before the competitive range determination is made, and a more in-depth evaluation is performed after that. The second evaluation takes place after the offerors have updated their proposals in response to the request for Best and Final Offers (BAFOs). For those acquisitions that are awarded based on a contractor's original proposal (award without discussion), a second evaluation is not conducted. The initial evaluation of proposals involves a technical and cost/price evaluation, and when applicable, a review of management, manufacturing, logistics and test portions of proposals may be conducted, along with a risk assessment of each proposal. As team members evaluate proposals against the standards, any strengths or weaknesses identified in the proposals are documented in a narrative analysis to support the findings. Also, during the initial evaluation of proposals, evaluators must document any deficiencies cited in the proposal. Deficiencies are recognized as any area of the contractor's proposal that fails to meet the government's minimum level of compliance as defined in the evaluation standards. Deficiency reports should be prepared separately from the narrative analysis of strengths and weaknesses cited in the proposals, and should include the impact an uncorrected deficiency could have on the project. Contractors are notified of deficiencies in their proposal, and given a reasonable

opportunity to resolve the deficiencies after the competitive range has been determined. During the initial evaluation of proposals, it may also be necessary to have contractors clarify parts of their proposal due to lack of information, contradictory statements contained within the proposal, or because clerical errors have caused confusion as to the actual intent of a statement. Unlike deficiency reports, clarification requests that do not warrant discussions with a contractor may be issued to the respective contractor prior to the competitive range determination.

f. The Contracting Officer bases the competitive range determination on the narrative analysis of the initial evaluation of proposal strengths and weaknesses, along with any deficiencies cited in a proposal, the potential for the deficiency to be corrected, and price. The determination identifies those contractors who stand a reasonable chance for selection of contract award based upon the initial evaluation of proposals. Whenever there is doubt to whether a proposal has a chance for selection of award, the proposal should be included in the competitive range. Once contractors are identified as being within the competitive range, discussions may begin.

g. The Contracting Officer conducts discussions with all contractors within the competitive range through written and/or oral communications. These discussions ensure there are no misunderstandings remaining prior to the final evaluation of proposals and selection of contract award. During discussions, the contracting officer discloses any deficiencies cited in the contractors' proposals. The Contracting Officer also requests clarification for any unclear area in a proposal from lack of information, conflicting statements, or clerical errors. Once discussions are concluded with all offerors, the Contracting Officer issues written requests for Best and Final Offers (BAFOs). The call for BAFOs enables contractors sufficient time to correct any deficiencies in their original proposal and to clarify any conflicting statements identified to them by the Contracting Officer. Offerors are advised that any changes to their original proposal must be supported by rationale for the change, and that all revisions are due by a common cut-off date specified in the notification for best and final offers. The second evaluation of proposals occurs when contractors submit their best and final offers. The evaluation after BAFO receipt is only on changes made by the offeror in his BAFO response. The BAFO responses are evaluated by the team, and any changes that occur to the technical and/or cost ratings of the original proposals are documented.

h. Once the evaluation of BAFOs is complete, and all the necessary reports and briefings are presented to the SSA, the award decision can be made. (See the AF Regulations 70-15 and 70-30 for a complete description of the documents, reviews, and briefings required for the different categories of acquisitions.) The SSA will base the award decision on the information documented from the evaluation of proposals, discussions with offerors, and the best and final offer results. After the SSA has selected the awardee for an acquisition, a Source Selection Decision Document is prepared for SSA signature. The source selection decision document identifies the contractor selected, the system title, RFP number, the rationale used in support of the decision, and describes the basis for the decision in terms of beneficial value to the government. After the source selection authority signs the source selection decision document, it is forwarded to the Contracting Officer for the formal execution of the contract (see data sheet D74).

i. While paragraphs 7a-h, above, provide general guidance on conducting a source selection for competitive acquisitions, there are noncompetitive procurements that follow a different set of procedures. Prior to conducting a sole source acquisition, the project team must determine if the acquisition meets the statutory requirements set forth in FAR Subpart 6.3, Other than Full and Open Competition. If it's determined the acquisition is supported by one of the authorities cited in Subpart 6.3, the project team may proceed under the procedures for noncompetitive acquisitions. All noncompetitive procurements must have written justification substantiating the team's need to award a contract on a sole source basis. The justification for other than full and open competition must cite the specific authority referenced in Subpart 6.3, along with identifying the contracting activity, the supply or service to be provided, a description of why the contractor's unique qualifications fall under the authority cited, and a statement that the cost to the government will be fair and reasonable. After the justification is prepared, it must be approved prior to conducting negotiations with the prospective contractor (see FAR Subpart 6.3 for a breakdown of approval levels). The negotiations between the project team and the contractor are

conducted to reach an agreement on all aspects of the proposal, including terms and conditions, and the pricing arrangements. Once the negotiations are complete, the contract award process begins (see Data Sheet 74).

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The source selection process begins when the Request for Proposal (RFP) is released to industry (see Data Sheet D69).

b. Exit: For competitive acquisitions, the source selection process ends with the award of the contract(s), and on noncompetitive acquisitions the process is complete at the conclusion of negotiations (see Data Sheet D74).

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The key inputs for the source selection process are the Source Selection Plan (SSP), and the receipt of contractor proposals for evaluation. The project office is responsible for developing of the SSP, and ensuring plan approval by the source selection authority prior to the release of the request for proposal to industry. The source selection plan is instrumental in the evaluation process because it provides the source selection team the criteria and procedures required to conduct the source selection. For a more detailed description of the source selection plan and its purpose, see data sheet D62. Industry proposals are, of course, necessary for the solicitation to evolve into an actual program. Contractors prepare their proposals based on government requirements as described in the request for proposal. After preparation, the proposals must be sumitted to the project office by the date and time specified in the RFP. For a detailed description of the RFP and its release to industry, see data sheets D64 and D69.

b. Outputs: For competitive acquisitions, the key output in the source selection process is the source selection decision document that identifies the awardee of a contract. The source selection decision document must be signed by the SSA prior to the document being forwarded to the project office. Receipt of the signed source selection decision document gives the Contracting Officer the authority to execute the formal contract (see data sheet D74). For noncompetitive acquisitions, the key output is the formal contract issued by the project office at the conclusion of negotiations.

10. KEY REFERENCES:

a. Federal Acquisition Regulation (FAR) Subpart 6.3, Other Than Full and Open Competition, and applicable supplements. FAR Subpart 6.3 provides policies, procedures, and statutory authorities for contracting without full and open competition.

b. Federal Acquisition Regulation (FAR) Part 15, Contracting By Negotiation, and applicable supplements (see paragraph 5, above, for a brief description of policies covered under FAR Part 15).

c. Air Force Regulation 70-15/AFFARS Appendix AA, 27 Apr 88, Formal Source Selection for Major Acquisitions, and applicable supplements (see paragraph 5, above, for a brief description of policies covered under AFR 70-15).

d. Air Force Regulation 70-30/AFFARS Appendix BB, 27 Apr 88, Streamlined Source Selection Procedures, and applicable supplements (see paragraph 5 above, for a brief description of policies covered under AFR 70-30).

e. A Schedule for Acquisition Planning: Initial Acquisition and Strategy Development through Source Selection, Jan 92, Prepared by ASD/CYX. This document describes the tasks that a project/program office must accomplish from new start review through RFP release, source selection,

and first Post-Award Conference. The document also contains a brief description of what each major task or review entails, along with detailed breakdowns of the tasks in certain areas.

11. IMPLEMENTATION TOOLS: The project team should have the documents referenced above, in paragraph 10, available for use throughout the acquisition cycle. The documents provide in-depth guidance on the entire source selection process, the arrangement and responsibilities of the various source selection organizations (i.e., Source Selection Evaluation Team [SSET], SSAC, etc.), along with providing invaluable examples of standards, source selection reports, and listings of major source selection events.

12. PLANNING GUIDANCE:

a. DURATION: The desired time frame for source selection is 120 days from the time the RFP is released to industry until the award decision is made. It may be necessary, however, to adjust the schedule based on the level of complexity of the project. Any adjustments in the schedule beyond the number of days approved in the Source Selection Plan (SSP) must be supported by written justification, and submitted to the appropriate approval level for the acquisition.

b. CONSTRAINTS: Some constraints associated with the source selection process involve the difficulty in scheduling qualified individuals to serve as evaluation team members, or as advisors for the source selection. Most source selections require full-time resources who can be available to perform their responsibilities at a given time. If source selection team members are committed to numerous other work-related activities, it may be difficult for them to provide the type of support desired. On major acquisitions, it may be difficult to schedule time when all members of the Source Selection Advisory Council (SSAC) are available to meet.

c. RESOURCES:

(1) The level and complexity of a project will determine the exact make-up of a source selection organization. In general, the evaluation team would be comprised of individuals from the technical and contracting fields, and should include representatives from each of the functionals. Dependent upon the project, representatives may be required from support organizations such as the ALCs, and the user may also be involved in the evaluation. Also, based on the complexity of the project and the resultant proposals, the source selection organization may include an advisory group to provide support and guidance to the evaluation team, and in turn, provide advice and assistance to the SSA. For all acquisitions, the SSA is the individual responsible for ensuring the proper and efficient conduct of the source selection process, and for making the final selection decision. While it's next to impossible to pinpoint the exact number of hours a source selection team member will spend performing his specific duties, it's important for each individual on the team to know the schedule of events contained in the source selection plan, and how the performance of their individual responsibilities can impact the schedule.

(2) At ASC, a valuable resource for the project team to consult is the Source Selection Support Program Office. ASC/CYX, located in Area B, Building 125, provides project teams with automated RFP preparation tools, along with connections to WANG, VAX, and IBM maintrames, presentation graphic systems, and high speed printers. ASC/CYX also provides advisors, facilitators, and trainers to assist the source selection team throughout the entire source selection process.

d. LESSONS LEARNED: ASC/CYX has documented numerous lessons learned into a text entitled, ASC Request for Proposal and Source Selection Lessons Learned. While it's impossible to address all those lessons in this data sheet, a sample of some lessons learned are provided below for consideration by the project team. If the project team would like a more comprehensive data bank of lessons learned, contact ASC/CYX for a copy of the text.

(1) Problem Encountered: Multiple reviewers of related source selection documents such as the Acquisition Plan, Source Selection Plan, Evaluation Guides, etc., led to numerous revisions of documents due to conflicting recommendations needing to be resolved. The reviewers often did not have recommended changes prepared for the documents in question, and therefore, were unable to meet suspenses. Poor planning and organization on the part of the reviewers resulted in slippages to the source selection schedule.

Lesson Learned: While it is necessary to have the various functionals represented in the review and coordination process of source selection documents, it is also necessary to have solid up-front planning and review/coordination ground rules established. All reviewers/coordinators should be advised of the ground rules, responsibilities, and suspenses associated with the source selection to ensure a more efficient, streamlined process occurs. Prior to the final preparation of the documents, the reviewers should meet to discuss any clarifications/justifications needed so the final documents prepared represent the coordinated position of all functionals involved in the process.

(2) Problem Encountered: Evaluation standards usually only address a specific technical aspect to be scored. However, it is common for the performance of systems/subsystems to be interrelated, and that any strengths, weaknesses, and risks identified in one evaluation area may have significant impacts on other evaluation areas. Since evaluation team members are usually assigned only a specific area to evaluate, inconsistencies tend to occur when interrelated systems/subsystems are evaluated by different team members. The inconsistencies cited from the evaluation of the different areas must be resolved prior to preparation of final support documentation, and this contributes to additional time needed by reviewers to coordinate their efforts.

Lesson Learned: When evaluation standards are written for an acquisition, it's important to address the possible impacts the related systems/subsystems have to one another. If evaluators understand the basic relationships of the systems and how they should be reviewed against the standards, the evaluators will spend less time resolving discrepancies and inconsistencies in their write-ups.

(3) Problem Encountered: During an evaluation of proposals some clarification requests (CRs) to the offerors were reworded without the coordination of the originator of the CR. The rewording of the clarification requests resulted in responses from offerors that failed to answer the originator's questions, and in turn, resulted in unnecessary discussions during the government-offeror discussion period. Also, there have been instances where clarification requests were prepared and submitted by technical team members outside their area of responsibility. When the CR responses were received, the team member actually responsible for the evaluation area in question could not relate to the response submitted

Lesson Learned: The coordination of the originator of a source selection document should occur prior to rewording any statements that may change the original intent of a statement. By receiving the coordination of the originator, the government will generate accurate requests for information, and receive meaningful responses in return.

e. BEST PRACTICES:

(1) The project team should contact the Source Selection Support Office, ASC/CYX, early in the procurement process in order to gain the benefits of CYX expertise in the source selection process. ASC/CYX is responsible for managing the source selection process within the Aeronautical Systems Center, along with providing assistance and training to project teams. ASC/CYX is comprised of representatives from each of the functionals involved in the acquisition process, and these individuals are equipped to provide a wealth of information to project teams. ASC/CYX provides training to project teams gearing up for request for proposal development and source selection, along with the related activities and requirements of each. The training begins early in the acquisition cycle, and progresses in stages as the request for proposal is developed and source selection occurs. ASC/CYX tailors the

training to meet the specific needs of each individual project team by focusing on the peculiarities of the acquisition. ASC/CYX encourages project teams to use the source selection facility in Area B, Building 125, because of its unique capabilities in aiding the project team build the request for proposal, prepare necessary briefings and related documents, and also conduct the evaluation of proposals in one central location. The source selection facility provides project teams an environment free from the interruptions that occur in a normal office environment so all their efforts are concentrated on the source selection and its successful completion. Also, because of the need to ensure confidentiality of source selection information, it's imperative to conduct the source selection in a secure environment--the source selection facility in Building 125 provides such an environment.

(2) It is also recommended that ASC/CYX be contacted to ensure the project team is operating under the most current guidance and regulations governing source selection. Along with informing project teams of the latest guidance available for source selections, ASC/CYX maintains a text of lessons learned on past source selection activities. A project team may be able to avoid problems in their own source selection by what they learn in researching past projects.

(3) During the evaluation of proposals, all evaluators should prepare detailed, written narratives as soon as a strong or weak point is cited in the proposal. Poorly documented narratives can lead to the need to reevaluate proposals, and thus result in a slippage to the source selection schedule.

(4) Try not to have to issue a second request for BAFO. It requires special approval, and makes it look as though the government is trying to "auction" with offerors.

(5) Have the source selection team and evaluators assigned full-time. It will shorten the source selection cycle, and maintain continuity.

(6) The source selection standards should be written before the RFP is released. Writing standards during the proposal preparation period could result in an amendment to the RFP forcing an extension of the proposal due date.

f. TRAPS: Failure on the part of the project team to know what's contained in the regulations governing source selection will impact the completion of the source selection process. Since the regulations set-out the types of documents required, the various levels of reviews required, and the responsibilities of members in the various source selection organizations, it's important for all members of the project team to be familiar with the source selection regulations.

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1. **ELEMENT:** D71, TBS 1.2.5.4.7 (IFC 93-3)

2. **ELEMENT TITLE:** Prepare Milestone I Program Cost Estimate

3. **ELEMENT OWNER:** Office of the Secretary of Defense Cost Analysis Improvement Group (OSD CAIG) - ACAT I D; Air Force Cost Analysis Improvement Group (AFCAIG) - ACAT I C, II, III, & IV.

4. **ELEMENT STAKEHOLDER(S):** Hq USAF, Operating Command, Project Team, ASC/FM/AL.

5. **REQUIREMENT:** DoDI 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91, Part II, Section A, paragraph 2C; Section C, Attach 1. A Program Cost Estimate must be generated to support Milestone I and an updated estimate must be documented for each subsequent Milestone Review. This requirement for a documented program cost analysis of life cycle costs applies to all ACAT levels.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of this activity is to develop a program cost estimate and documentation for the program alternative that will be recommended for approval at the Milestone I Decision Review.

b. Objective: The objective is to identify and quantify program resource requirements to support the decision process, and to develop the baseline for the resource requirements to be included in the Air Force Program Objective Memorandum. (The Milestone Decision Authority (MDA) should direct that this estimate be incorporated into the Air Force financial plan upon approval to proceed.) It must be noted that the efforts discussed here represent only those to formally estimate and document the preferred option. If analyses are required for other alternatives, program management and the estimators must assess the additional time and resource requirements based on the scope and complexity of the alternative estimates.

7. **DESCRIPTION:** The cost estimate should include all program life cycle costs: development, production, operating and support, and disposal. Since the estimate will be provided to support the Milestone I decision to initiate the Demonstration/Validation phase, the estimate should quantify the activities for the Dem/Val phase as discretely and accurately as possible, so any necessary adjustments can be made in near-term funding levels. The subsequent phases may be estimated at higher levels, based on the best information available. The development of the Program Cost Estimate consists of planning and executing five major activities which are summarized below. The reader will find a more detailed description of these tasks in Chapter 3 of Vol. 1 of the referenced AFSC Cost Estimating Handbook. In addition, more detail is provided in other chapters of the handbook as noted below:

a. Defining the estimate - this effort consists of defining the program to be estimated, determining the scope of the estimate, assembling the estimating team and assigning responsibilities, and defining estimate groundrules, assumptions, and constraints. This should be documented in the estimate plan, and approved by the Project Manager. The estimate plan should contain a schedule for the estimating activities based on the estimated time required to accomplish the following estimating tasks. The time required for each of the activities can be expected to vary for every estimate, depending on the size and experience level of the team, prior research and estimating efforts for the program, etc. Specific sources of information which should help define the program to be estimated are contained in Key Inputs (Section 9.a.), which follows (Chapter 4).

b. Research - the cost analysts perform initial research to determine appropriate estimating methodologies, and perform data collection to determine if information can be obtained to support the selected estimating approach(es) (Chapter 5).

c. Develop the estimating approach - the preliminary estimating methods are selected, and any estimating tools are designed or updated, as appropriate (Chapter 6).

d. Perform estimate and crosschecks - the analysts generate the detailed estimates and verify the results with any appropriate crosschecks to ensure the results are logical, reasonable, and complete. (Note: An estimate documented to support either a milestone review or a budget submission must reflect a "point estimate". However, if possible, the estimators should provide estimate ranges to the decision makers to aid in the estimate review and approval process) Chapter 4, paragraph 4.5.3).

e. Documentation and approval - the estimate must be documented and provided to project management for approval. This process usually involves presentation of the estimate to the senior program and functional managers assigned to the project. After internal approval, the estimate should be provided to the Operating Command for review and approval. When this is completed, the estimate should be considered the formally approved Program Cost Estimate for the Milestone decision review, and should be the basis for all program estimate "what ifs" and budget submissions until superseded by another formal program estimate. The reader should refer to Chapter 22, of the referenced AFMC Cost Estimating Handbook, or ASDR 173-1 for more detailed information on ASC estimate documentation requirements.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance:

(1) If this estimating activity is not already underway, IT MUST BE INITIATED as soon as the Milestone I Decision Review is scheduled, so the Milestone estimating requirements can be satisfied with quality products in time to support all required reviews. Further, the estimate content should be based on the recommended program option (C25) selected from the Cost And Operational Effectiveness Analysis (COEA). However, while this estimate must be based on the program to be recommended at the Milestone review, there may be a requirement for the generation of alternate estimates or excursions to support the decision process. To ensure that these and all other requirements are satisfied, the Project Manager must keep in close contact with the responsible personnel in the Operating Command, assumed here to be the Concept Action Group (C16). The CAG should be responsible for working issues with USAF and OSD to ensure that all issues are resolved.

(2) If any additional estimates are required, the additional effort for development of these estimates and any supporting documentation, such as the Cost Analysis Requirements Description (CARD), must be included in the planning for the Milestone review. Specifically, for any programs that the OSD CAIG will review, the CAIG Chair coordinates on the description of the alternatives, the scope of the estimates to be made, and the assumptions needed for developing the cost estimates. Finally, this information must also be documented in the CARD format (D72). For non-OSD CAIG program reviews, coordination should be performed to ensure that the MDA and the organization responsible for reviewing the estimates are provided all information that is expected, or the Milestone approval may be delayed.

b. Exit: The estimate should be reviewed and approved by both the Project Manager and the Concept Action Group (CAG) in the Operating Command prior to submission into the Milestone Decision review process. For programs which will undergo an Air Force CAIG review, the following events are mandated by the draft AF Sup. 1 (to DoDI 5000.2) to occur no later than the schedule dates (in calendar days) which follow. (Note: These requirements also apply to the Component Cost Analysis (CCA) team, and any meetings or reviews will address both estimates.)

DAB Program Requirements

	Days Prior to/ Air Force Review /Committee
Draft project office estimate submitted to AFCAIG	55
Project Office presents estimate for SAF/FMC "shirt sleeve" review	55 / DAB
Project Office presents estimate to AF CAIG	51 / DAB
Final project office estimate submitted to AFCAIG	28 / DAB

Air Force Milestone or Program Review Requirements

	Days Prior to Air Force Review
Draft project office estimate submitted to AFCAIG	24
Project Office presents estimate for SAF/FMC "shirt sleeve" review	18
Final project office estimate submitted to AFCAIG	14
Project Office presents estimate to AF CAIG	11

These activities only reflect the program office responsibilities relating to the review and approval of the Program Cost Estimate. Numerous other events and activities will be required to support AFSARC/DAB Program Reviews. For other programs, the estimate must be generated to support planning schedule directed by the CAG and/or the MDA. It is imperative that the program office be proactive and coordinate with the scheduling authority to ensure that reasonable and executable schedule dates are developed.

9. KEY INPUTS AND OUTPUTS:

a. Inputs:

(1) At this stage of the project, usually only limited technical and programmatic information is available, but to derive a comprehensive estimate of total program costs, the project team must agree on a baseline program content which can be estimated. DoDM 5000.2M requires this description of program content to be documented in a specific format, the Cost Analysis Requirements Description (CARD). The program information must be consistent with CAG direction, and the assumptions and data utilized in the COEA analysis. The program information should include system description (to the extent possible), development and production schedules, quantities, and acquisition and support strategies. The source of this information should be the project team members (engineering, manufacturing, contracts, logistics, test, and management) and Operating Command personnel. In addition to providing detailed information on their functional areas, these experts will need to support the cost estimators by identifying analogous programs, and aiding in the development and justification of the selected estimating relationships. It is imperative that senior functional personnel, knowledgeable in both program acquisition, and the specific program, be involved in this program planning and estimating support.

(2) The results of this program definition effort should be well documented in the CARD, and this document must be the source of the estimate content and assumptions. This information should be documented as clearly as possible, as annual updates of the CARD are required, and any revisions must be tracked. (Note: This cannot be overemphasized, since all levels of Air Force management will require tracking between program cost estimates provided to them.) Although a CARD is only required documentation for ACAT I & II program reviews, developing a CARD should provide valuable insight into areas that warrant further analysis for any program. Moreover, even when not mandatory, the development of a CARD should improve both the quality and credibility of the cost estimate.

(3) If contractor cost proposal information (B70) is available for the Demonstration/Validation phase, this information should be evaluated and incorporated into the estimate as appropriate. In addition, the Component Cost Analysis team (B21) may find information during it analysis which the project team determines should be incorporated into their estimate. This may also prove to be a valuable input to the Milestone I estimate, even if received late in the analysis process.

b. Outputs: The results of the above cost analysis effort should be documented as the Program Cost Estimate for the Milestone I review, and approved by the Project Manager and archived in the project database. The documentation must include all groundrules and assumptions and programmatic information necessary to replicate the estimate and fully support cost relationships utilized. At ASC, the documentation must be accomplished in accordance with ASDR 173-1. If the estimate will be reviewed by the AF or OSD CAIGs, the documentation should be generated in accordance with the referenced "Cost Estimating Documentation Checklist" and "OPERATING AND SUPPORT COST" ESTIMATING GUIDE, and the draft documentation must be provided to the AFCAIG (and the CCA team, B21) no later than 55 days prior to the planned Defense Acquisition Board Committee review. For Air Force Milestone Program reviews, the estimate must be delivered no later than 24 days prior to the Air Force Review. This is essential, since the estimate is a critical input to both the Independent Cost Estimate activity, and the CAIG(s) review and analysis. Failure to satisfy these requirements could result in a slip in the Milestone I review process. If a source selection is being conducted (D70), the contractors' cost proposal information should be valuable information for this estimate. Further, some elements of this estimate may need to be incorporated into the source selection analysis to develop a complete estimate of program costs.

10. KEY REFERENCES:

a. DODD 5000.4, OSD Cost Analysis Improvement Group, 24 Nov 92 - Chapter 1 provides guidance on CARD preparation, and Chapter 2 addresses the requirements for cost analysis presentations to the OSD CAIG.

b. AFR 173-1, The Air Force Cost Analysis Program, 3 Oct 80 - Establishes the Air Force Cost Analysis Program, specifies objectives and functions, and assigns responsibilities.

c. AFR 173-11, Independent Cost Analysis Program, 7 Oct 86 - Identifies requirements for Independent Cost Analysis and Program Office Estimates.

d. AF Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93, paragraphs 1.3.10, 1.4, Attachments 1, 2, and 5 - Provides guidance on the CAG and COEA.

e. AF Sup. 1/DoDI 5000.2, Aug 92 (DRAFT), Part 10A - Air Force cost estimating requirements.

f. DoD 5000.4-M, Cost Analysis Guidance and Procedures, Dec 92, Chapter 1 - CARD preparation .

g. ASDR 173-1, Aeronautical Systems Division Cost Analysis Program, 17 Jan 89 - defines the cost estimating responsibilities and requirements for project/program offices at ASC, and provides comprehensive guidance on estimating documentation.

11. IMPLEMENTATION TOOLS: ASC/FM can provide information on the following cost analysis aids and tools:

a. The AFSC Cost Estimating Handbook, Vol I (undated) - estimating and documentation information.

b. The AFSC Financial Management Handbook, Nov 92 update - financial information.

c. ASC/FM Cost Workstation - a computer automation aid and application tool.

d. The ASC Cost Data Center - historical cost data, cost models, and other cost related materials and references.

e. AFMC Cost Estimating Handbook, Vol. II, Aeronautical, 21 Sept 92 - estimating and documentation information.

f. OSD/PA&E letter "Policy for Operations of the Cost Analysis Improvement Group," 7 Apr 93.

g. The following should be referred to for documentation requirements:

1. SAF/FM "Cost Estimating Documentation Checklist", 16 Nov 92

2. OSD CAIG "OPERATING AND SUPPORT COST ESTIMATING GUIDE," May 92.

12. PLANNING GUIDANCE:

a. DURATION: The time required to perform and document an estimate must be planned based on the specific conditions and methodologies chosen. The time can be expected to vary for every estimate depending on the program complexity, data availability, and the size and experience level of the estimating team. Early in the program life cycle, estimating activities are typically based on parametric analysis and should take 2 to 4 months. Again, this can't be considered firm; the time required to perform and document an estimate must be planned based on the specific conditions and methodologies chosen.

b. CONSTRAINTS: The greatest limitations in the performance of the estimate are lack of program definition, and the lack of relatable historical cost information element. If there are limited personnel to accomplish the analysis in time to meet the required schedule, support should be requested from staff home offices or the Program Development SPO (ASC/YX).

c. RESOURCES: The estimate is usually performed by one or two full time cost estimators in the project office, plus possibly two to four staff analysts if the estimate is new, or represents a major workload. Operating and Support cost estimating support from ASC/AL may also be required if the project office does not have the in-house capability to perform this analysis. Engineering, logistics, test, and program management personnel should be formally assigned to the estimating team, even if dedicated only part time, and they can be expected to each need to provide a minimum of 80 hours for technical support, if the estimate is new. Computer assets are considered a necessity for both computation and documentation.

d. LESSONS LEARNED:

(1) The Cost Staff (ASC/FMC) should be contacted to have a staff cost analyst focal point assigned to support the analysis effort. This analyst could be a valuable resource by aiding in data searches and estimating methodology selection. The analyst can also be a valuable asset in supporting management reviews. Further, the cost staff may be able to provide analysts to support or perform elements of the estimate, or personnel to perform schedule analysis. It should be expected that many estimating variations and estimating excursions to the preferred program option will be requested to support the decision making process; each of these should be documented and tracked, by both program content and estimate results. Failure to do so can result in significant rework and loss of credibility. If alternative programs must be estimated that have content significantly different from the preferred program option, the program office should consider requesting the Cost Staff to take responsibility for the generation of these estimates.

(2) The project office must maintain a complete file of estimates that have been used in the decision process, so all rationale and considerations are available for review. Further, comprehensive tracks between formal estimates should be performed and documented.

e. BEST PRACTICES: The cost analyst should develop a comprehensive estimate plan which defines program content, describes the estimating approach and the estimate schedule, identifies estimate team members and assigns responsibilities, and identifies estimate groundrules and assumptions. The management approval of this plan should ensure the commitment of necessary resources, and baseline the program to be estimated. Lack of a comprehensive plan may result in unnecessary perturbations, rework, and schedule slips. The estimate plan should be coordinated with the CAG and the representative of the MDA to ensure all requirements are fully identified, defined, and satisfied.

f. TRAPS:

(1) It is imperative that cost analysts identify methodologies and data requirements as soon as possible so these needs can be made known. If this information is not available, work-arounds must be made as soon as possible to maintain the estimating schedule and support the Milestone Decision process. Also, it is essential that the estimating and functional team members be carefully selected, so that the best possible analysis can be performed at this time, and a sound financial baseline can be established to support planning activities.

(2) The estimate discussed above had its genesis in the COEA analysis, and during the milestone reviews, the estimate will be compared to the estimates for the other COEA alternatives. Due to this, IT IS ESSENTIAL that any changes to the program content, assumptions, or estimate results be incorporated into the COEA. Failure to do this, may result in insufficient or contradictory information provided to the Milestone decision makers, and a possible delay in program approval. Further, if a source selection estimate is being generated, the cost analyst must ensure that it is consistent with the estimate generated here for the Milestone I Review.

1. ELEMENT: D72, TBS 1.2.4.5.6 (IFC 93-3)

2. ELEMENT TITLE: Update Cost Analysis Requirements Description (CARD)

3. ELEMENT OWNER(S): OSD/PA&E

4. ELEMENT STAKEHOLDER(S): OSD CAIG, AF CAIG, AFCAA, Product Division Staff, Project Office. Anyone involved in preparing or reviewing a cost estimate.

5. REQUIREMENT: DODI 5000.2, Defense Acquisition Management Policies and Procedures, Change 1, 26 Feb 93, Part 11, Section C, Attachment 1 indicates a CARD is required no later than the Milestone Planning Meeting.

DOD 5000.4-M Acquisition Policy 93M-012, 28 Jun 93, Provides information on developing the CARD.

6. PURPOSE/OBJECTIVES:

a. Purpose: Update the technical and programmatic description of selected alternative(s) used by the cost analysts estimating the cost of the alternative(s).

b. Objectives:

(1) Provide the program office cost estimating and the component cost analysis teams with a common basis for their project cost estimates.
(2) Describe the salient features of the program and of the system to be estimated.
(3) Facilitate the identification of any area or issue that could have a significant effect on life-cycle costs.

7. DESCRIPTION:

a. A CARD should be regarded as a "living" document that is updated as technical or programmatic changes occur. There are several reasons for updating the draft CARD (D52) at this time:

(1) The preferred concepts have been further defined (D37b),
(2) Phase I plans are being developed/updated (D57, D58, D59, D60, D61, D66, D67, D68),
(3) A project estimate is required to support the budget process, and
(4) The project has been scheduled for a Milestone I review (A23, B19).

Whenever the CARD is updated the changes need to be identified, so the cost analyst just has to update the affected portion(s) of the estimate. Chapter 11 of the CARD is used to track these changes.

b. DOD 5000.4-M provides guidelines for the preparation and maintenance of a CARD. The following paragraphs summarize some of the key procedures for preparing CARDs and submitting them as part of a Milestone (MS) review package.

(1). A CARD is prepared by the project office (or an organization specified by the sponsoring DoD Component if a program office does not exist) for each alternative considered in the cost and operational effectiveness analysis (COEA). When appropriate, CARDs can be prepared as excursions to the preferred alternative(s) or one of the other alternatives. CARDs are approved by the Program Executive Officer (PEO) or the Designated Acquisition Commander (DAC) .

(2). The CARD is provided to the teams preparing the Program Office Estimate (POE) and Component Cost Analysis (CCA) estimates and is included as a separate section of the documentation for those estimates. For acquisition category (ACAT) I projects, an updated CARD is

provided in draft form to the Office of the Secretary of Defense (OSD) Cost Analysis Improvement Group (CAIG) and the Air Force CAIG at the planning meeting (A23, DAB Planning Meeting, and B19, AFSARC/DAB Planning Meeting) held at least 180 days before a Defense Acquisition Board (DAB) review (A22, DAB Review). A final version of the CARD is provided to the OSD CAIG 45 days prior to a DAB Committee review (A20, OSD Committee Review). For ACAT II projects, the updated CARD is provided in draft form to the AF CAIG at the planning meeting (B19, AFSARC/DAB Planning Meeting) and a final version of the CARD is provided to the AF CAIG prior to an AFSARC review (B24, AFSARC Meeting).

c. The level of technical and programmatic information about an acquisition program that may be available for incorporation into the CARD will vary significantly depending upon the maturity of the program. Understandably, programs in Phase 0 are less defined. Accordingly, the CARD for a Pre-Milestone I program may present the information in terms of ranges of potential outcomes. If a source is referenced in the CARD, it should be included as an attachment to the CARD.

d. Since the CARD is one of the documents required for Milestone review, it should be included in the milestone documentation review cycle. It will also need to be reviewed by the following offices: the Using Command point of contact, ASC/FM, AFMC/FMC, AF CAIG, and the OSD sponsoring committee. These reviews are normally accomplished at the same time the POE is reviewed and in preparation for the ICE. The Program Executive Officer (PEO) approves the CARD for submission to the OSD CAIG and the DAB.

e. The CARD will be "frozen" at some point during the Milestone review process so both the POE and CCA can be based on the same description.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: There are several reasons the CARD may need to be updated. These include:
(1) Decision has been made to proceed to Milestone I.
(2) Program office estimate is being updated.
(3) Technical and/or programmatic aspects of project have changed.

b. Exit: The cost analysts preparing the Program Office Estimate (POE) (D71) and the Component Cost Analysis (CCA) (B23) are satisfied that the CARD is comprehensive enough for them to conduct their cost estimating exercises.

9. KEY INPUTS AND OUTPUTS:

a. INPUTS:
(1) Draft CARD (D52)
(2) Milestone 0 Program Management Directive (B10) -- Identifies which alternatives are to be studied.
(3) COEA Report (D48)
(4) Technical and programmatic information. DOD 5000.4 M, Chapter 1 provides an "Outline of CARD Basic Structure" which defines what information each paragraph should contain. The following list identifies some of the information the CARD should contain. It also indicates some of the documents that may contain the required information.

(a) System configuration (D37B)
(b) Mission Need Statement (A8)
(c) System Threat Analysis Report (D50)
(d) Relationship to other systems (D37B)
(e) Major factors influencing cost (D37B)
(f) Technical description of the hardware and software (D37B)
(g) Human characteristics of the system (D37B)

(h) Preliminary Integrated Manpower, Personnel and Comprehensive Training and Safety (IMPACTS) Program Plan (P-IPP) (C11)
(i) Project Manager's Risk Assessment/Abatement Plan (D55)
(j) Unit Manpower Document (D22)
(k) Integrated Logistics Support Plan (D23)
(l) Total System Training Plan (60)
(m) Quantity Requirements (D37B)
(n) System Manpower Requirements (C11)
(o) System Activity Rates (D37B)
(p) System Milestone Schedule (D55)
(q) Acquisition Plan and/or Strategy (D58)
(r) System Development Plan (D37B)
(s) TEMP (D54)
(t) Facilities requirements (D37B)
(u) Environmental Impact Analysis (D57)

b. OUTPUTS: The CARD. DoD 5000.4-M, Chapter 1, provides a detailed description of what is required in each section.

10. KEY REFERENCES:

a. DoDD 5000.2-M, Defense Acquisition Management Documentation and Reports, Feb 91. Part 15 requires development of the CARD.

b. DODI 5000.4, OSD Cost Analysis Improvement Group (CAIG), 24 Nov 92. Section D outlines OSD CAIGs role in using and reviewing the CARD.

c. DOD 5000.4-M, Cost Analysis Guidance and Procedures, Dec 92. Chapter 1 provides guidelines for the preparation and maintenance of a CARD.

11. IMPLEMENTATION TOOLS: None

12. PLANNING GUIDANCE:

a. DURATION: The CARD is a "living" document which should be updated whenever a significant technical or programmatic change occurs. As a minimum the CARD is updated in preparation for DAB reviews and each POE update. The updates should document and track changes that have occurred and should incorporate additional data developed since the last update. The length of time required to accomplish this update will depend on how much has changed since the last update.

b. CONSTRAINTS: Limited technical/programmatic detail prior to MS I. Much technical detail is unavailable until after MS II.

c. RESOURCES: Approximately 40 hours each from all of the functional areas. Again, this depends on how much new information is available since the last update.

d. LESSONS LEARNED: It is vitally important that the CARD be "frozen" during preparation for a given milestone review. All documentation submitted in support of a DAB review must speak to the program that is briefed to the Milestone Decision Authority.

e. BEST PRACTICES: Prior to submission to the appropriate SAF/AQ office, the CARD should be coordinated with the CCA team chief. This will give the cost analysts the opportunity to contribute to the CARD preparation and provide them with estimating information to allow the earliest possible start of the CCA.

f. **TRAPS:** The cost analysts responsible for preparing the POE should review the CARD before it is submitted to the AF CAIG. These analysts should perform a quality check to ensure that the CARD is complete and contains all the information they will need to prepare the POE.

1. **ELEMENT:** D73, TBS 1.2.4.6 (IFC 93-3)

2. **ELEMENT TITLE**: Update Database

3. **ELEMENT OWNERS:** Operating Command, Implementing Command, Product Center Development Planning Directorate (XR) and Program Development SPO (ASC/YX), Industry.

4. **ELEMENT STAKEHOLDERS**:

a. Implementing Agencies: Department of Defense (DOD), Secretary of the Air Force (SAF), Implementing Command, Product Center XR and YX (ASC).

b. Supporting Agencies: Air Force Intelligence Support Agency (AFISA), Air Force Studies and Analysis Agency (AFSAA), Laboratories, Industry, Operating Commands.

5. **REQUIREMENT:**

a. Air Force Policy Directive (AFPD) 10-6, Mission Needs and Operational Requirements, 19 Jan 93: This directive requires the implementation of the DOD 5000 series documents, which in turn requires the maintenance of database.

b. AFPD 37-1, Information Management: (On order, upon receiving document, the definition will be constructed).

c. AFPD 63-1, Acquisition System: (On order).

d. AFR 55-43, Management Operations, Test and Evaluation, 29 Jun 90: This regulation describes he support document requirements and the Data Management and Analysis Plan.

e. Department Of Defense Directive (DODD) 5000.1, Defense Acquisition, 23 Feb 91: Establishes a disciplined management approach for acquiring systems and materiel that satisfy the operational user's needs.

f. DODD 8320.1, Data Administration, 26 Sept 90: (On order)

g. MIL-STD-1388-1A, Logistics Support Analysis (LSA), 11 Apr 83: The goal of this standard is a single, uniform approach by the Military Services for conducting activities necessary to cause supportability requirements to be an integral part of system requirements and design, with documentation developed and maintained.

h. MIL-STD-499B, Systems Engineering, Draft: The decision database may be digital, defined by the Government or left open for contractor definition.

i. MIL-STD-1388-2B, DOD Requirements for a Logistics Support Analysis Record, 28 Mar 91: This standard is directed toward improving the cost effectiveness of the generation, maintenance, acquisition, and use of the technical data required to support an LSA program.

j. MIL-STD-1840A, Automated Interchange of Technical Information, 22 Dec 87: The purpose of this standard is to standardize the digital interface between organizations or systems exchanging digital forms of technical information necessary for the logistic support of weapon systems throughout their life cycle.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: The purpose of the data base is to provide a central location for the collection and storage of information/data. This information / data will support the Project Teams and subsequent

Systems Program Office in making decisions that respond to external and internal requirements, (i.e. the information needs of milestone decision authority).

b. Objective: At this point the database is updated using Phase 0 project activities planned since the establishment of Project Database, D15, and subsequent updates in D31, D44 and D49.

7. DESCRIPTION:

a. The database is the information used and generated for integrated requirements and flowdowns; interface constraints and configuration alternatives, verifications, decision criteria, trade study assessments, and any other required documents. It includes physical and mathematical models, computer simulations, layouts, and similar configuration documentation and technical data, as appropriate. To update the database at this time is important, because this is the final opportunity to complete information on the total program development process, in particular, the activities related to planning and organizing for the program.

b. An operational database will continue to use MIL-STD-1388, MIL-STD-499B, MIL-STD-1840A, Computer-Aided Acquisition and Logistics Support (CALS), Contractor Integrated Technical Information Service (CITIS), and Integrated Weapon System Management (IWSM). The management information system will continue to provide tools for engineers; share program data with analysts, contractors, and the customer; management overview of program data and schedules; and a paperless delivery if appropriate, of required data. The database at this point will serve for the newly forming SPOs as the prime starting point of information source. The up-to-date database will also become the new organization's information depository.

8. **ENTRANCE/EXIT CRITERIA:**

a. Entrance: This is a continuous activity, intended to be current since established in D15.

b. Exit: The Data Base will continually be updated throughout the Pre-Milestone 1 process and beyond. As the SPO will be formed, the database will go with the new SPO.

9. **KEY INPUTS AND OUTPUTS:**

a. Inputs:

All documentation from Definition of Preferred Concept Alternatives (D37B).
All documentation from Complete Milestone I Documents and Plans (D68).
Other approved pertinent information since Update Database (D49).

b. Outputs:

All above inputs are used unaltered as outputs.

10. KEY REFERENCES: (In addition to those listed in Requirements, Paragraph 5)

a. Air Force Instruction (AFI) 10-601, Mission Needs and Operational Requirements Guidance and Procedures, 16 Feb 93: Identifies official Air Force information required for decision making and historical purpose and develop a schedule of the information life cycle to describe creation, maintenance, and disposition (AFI 37-123, Management of Records).

b. AFI 10-602, Logistics Support and Readiness Requirements: (On order, upon receiving document, the definition will be written).

c. AFI 14-303, Threat Support, Acquisition Process: (On order).

d. AFI 16-501, Control and Documentation, Air Force Programs: (On order).

e. AFI 33-105, Information System, Standard Programs: (On order).

f. AFI 37-1, Information Management: (On order).

g. AFI 37-123, Management of Records: Identifies the activities to plan, design, model, synchronize, standardize and control Air Force Corporate data at all echelons.

h. AFI 37-150, Data Administration and Standards Program: (On order).

i. DOD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, 23 Feb 91: Establishes an integrated framework for translating broadly stated mission needs into stable, affordable acquisition programs that meet the operational user's needs and can be sustained, given projected resource constraints.

j. DOD Manual 5000.2M, Defense Acquisition Management Documentation and Reports, 23 Feb 91: This Manual implements relevant portions of DODD 5000.1 and DODD 5000.2. Specific responsibilities pertaining to major areas are provided in each individual section, as appropriate.

k. Implementing Command: Submit required acquisition program documents. (Defense Planning Guide, Mission Area Assessment, and Mission Needs Analysis, etc.).

l. MIL-HDBK-59A, DOD Computer-Aided Acquisition and Logistic Support (CALS) Program Implementation Guide: The purpose of this military handbook is to provide general information and detailed application guidance for contractually implementing CALS requirements in weapon system and related major equipment procurements.

m. MIL-HDBK-X499-3, Systems Engineering/Configuration Management, Draft: The decision database will provide an audit trail from initially stated needs and requirements to the current description of system products and processes.

n. Secretary of the Air Force (SAF/AAI): SAF/AAI will ensure compliance with DOD Corporate Information Management (CIM) to allow sharing of data with appropriate DOD agencies and other Government agencies.

o. Supporting Command: The Supporting Command will collect and process Integrated Logistic Support (ILS) information in the Logistics Management Information System (LMIS). Outline the actions, support, and documentation needed to establish maintenance requirements for on and off equipment throughout the life of the system. Identify data collection and analysis efforts that will continue after fielding of system equipment.

p. Using /Operating Command: The user will ensure data and management needs are identified. Integrate the Logistics Support Analysis process with the System Requirements Analysis activity. Outline the actions, support, and documentation needed to establish maintenance requirements for on and off equipment throughout the life of the system.

11. IMPLEMENTATION TOOLS:

a. Automated Data Processing (ADP) is available as Government Furnished Property (GFP).

Contact:

Director USAMC Logistic Support Activity
ATTN.: AMXLC-AL
Lexington, KY 40511-5101
606-293-4193 (Mr. David Henderson)

b. Computer-Aided Acquisition and Logistic Support (CALS): The repository of information used and generated at the appropriate level for the acquisition phase of integrated requirements and flowdowns, interface constraints and requirements, functional and performance requirements, system concept, preliminary design and configuration alternatives, details design, verifications, decision criteria, trade study assessments, system, subsystem, and functional capability assessments, and other required documentation.

(a) MIL-HDBK-59A
(b) MIL-STD-1840A

c. Systems and Logistics Integration Capability (SLIC): This is a state-of-the-art, DOD Type III validated, micro computer based LSAR system that can be used to completely satisfy all MIL-STD-1388-2A requirements with total independence from any other hardware and software.

(a) SLIC I
(b) SLIC II

12. PLANNING GUIDANCE:

a. DURATION: Update the database continuously throughout the life of the product.

b. CONSTRAINTS:

(1) Identify computer resource constraints (examples include language, computer, data base, architecture, or interoperability constraints).

(2) Database capacity (identify spare memory and throughput requirements, computer memory growth requirements, software partitioning and modular design requirements such as software module size (e.g., no greater than 100 lines of code).

(3) Access capabilities
(4) Security restrictions
(5) Time
(6) Assumptions
(7) Funds
(8) Management Resources
(9) Training

c. RESOURCES:

(1) Facilities
  (a) Classified work space
  (b) Personnel office space and supplies
  (c) Database location

(2) Computer hardware and software programs
  (a) Analytical models
  (b) Program Management Software
(3) Security
  (a) Type of access required
  (b) Provide access for contractors
(4) Manpower
  (a) Security personnel
  (b) Computer systems personnel
  (c) Data management personnel

D. LESSONS LEARNED: (First two lessons transcribed from ALLCARS, the others are referenced).

(1) # 1982, Program Directors: Enhanced quality and quantity of information on the AFAM database. Improvements include additional lessons learned and best practices, updated references, increased number of tools such as software programs, document templates, samples, and courses. (Col. Ferrell, ASC/CYM, DSN 785-2213)

(2) #1344, Schedule Plan For A Source Selection: Develop a detailed plan for the execution of source selection that will aid the flow of data and provide expedient changes to contingencies. All data was computerized on an IBM program called "Super Project." The data were placed in a network to define the internal relationships of activities and resources and a Gantt chart was used to provide schedule suspense dates and serve as a tracking tool. By computerizing the data base "what-if" scenarios could be evaluated based on unknown contingencies (i.e., slip of data reviews, modifications to the proposals, personnel conflicts or absences). The database was used as a "living tool" to help manage 200 evaluators, 18 evaluation items, and 7 proposals. (POC will be added at later date.)

(3) # 1264, AFLC LMS Target Operating Environment.
(4) #1418, Internal Financial Management.
(5) #1888, Program Managers.
(6) # 1982, Program Directors.
(7) # 9020, Hardness Surveillance Test Systems (PHSTS).
(8) # 9063, Air Force Electronic Combat Office (AFECO).
(9) # 9115, ASIAC.
(10) #9116, Reliability Analysis Center (RAC).

E. BEST PRACTICES:

Use MIL-HDBK-59A, DOD CALS Program Implementation Guide, and MIL-STD-1840A, Automated Interchange of Technical Information to control data storage with frequent backups to avoid the loss of data.

F. TRAPS:

(1) Noncompatible CALS systems have problems with nonstandard terminology used to file or retrieve data.

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1. ELEMENT: D74, TBS 1.3.3.7 (IFC 93-3)

2. ELEMENT TITLE: Award and Issue Contract(s)

3. ELEMENT OWNER(S): ASC/PK (ASC/PKC)

4. ELEMENT STAKEHOLDER(S): Contracting Officer (CO), Project/Program Manager (PM), AFMC/PK, Source Selection Authority (SSA)

5. REQUIREMENT:

a. Federal Acquisition Regulation (FAR) Part 4: Prescribes policies and procedures for executing, reporting and distributing contract awards. See also Part 4 of Defense Federal Acquisition Regulation Supplement (DFARS), Air Force Federal Acquisition Regulation (AFFARS), Air Force Materiel Command (AFMC) and Aeronautical System Center (ASC) supplements for additional requirements.

b. FAR Part 5: Prescribes policies and procedures for publicizing contract awards. See also Part 5 of DFARS, AFFARS, AFMC and ASC supplements for additional requirements.

c. FAR Part 15: Prescribes policies and procedures for awards made by negotiation and the required documentation. See also Part 15 of DFARS, AFFARS, AFMC and ASC supplements for additional requirements.

d. AFFARS Part 5301.9011, 5301.9012 and AFMC Part 5301.9011: Prescribes policies, procedures and threshold levels for the Clearance Process.

e. AFMC FAR Part 5301.601-92 Prescribes when legal review of contract documents is required.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose in awarding a contract is to formalize Government funded efforts into a binding, legally enforceable, contractual vehicle between two parties, namely, the Government and a specified contractor.

b. Objectives: The objective is to issue a contract which clearly reflects the agreement of the parties and is consistent with current law, regulation and policy.

7. DESCRIPTION:

a. The contract award process is a combination of numerous document preparation activities, file preparation activities and reviews, which when completed, result in the release of a legally binding contract. The main document that needs to be prepared/finalized is the contract itself. The contract will consist of Sections A through J of the Request for Proposal (RFP), amended as negotiated between the parties or as amended during the Source Selection.

b. The official contract file must, also, be created. Air Force Form 3019 contains a checklist of documentation that may be required in the contract file. The completed form is included as part of the official file. The file must contain all the properly prepared and executed documentation required by law and regulation in addition to all pertinent correspondence to support the awarding of the contract. As a minimum, the following documents should be included: procurement directive, funding documents, correspondence with the contractor, the contractor's proposal, evidence of all required approvals, copies of briefings made, technical evaluations, pricing memorandum, legal and contract clearance coordination, and evidence of contractor acceptance of the contract and agreement with all of the terms and conditions therein.

c. The team required to generate and/or pull these documents together consist, mainly of the CO, PM, Contract Negotiator, and the Price Analyst (if different from the negotiator). As soon as negotiations are completed, the contract negotiator begins to incorporate the agreed to changes required to the contractual document and the file documentation. This would include documenting in the contract any special clauses or requirements that were negotiated and the completion of the pricing memorandum to describe the agreement of the parties. In a Source Selection, it is customary to have a contract ready to be issued incorporating agreed to changes for each offeror prior to the SSA decision.

d. When these documents are complete, the review/approval process begins. The review process begins with Contracting Officer and legal review of the contract and contract file. These initial reviews must take place prior to the contractor execution of the contractual document. Legal review after contractor execution of the document is only required if the contractor has made some type of change to the document or taken exception to something in the document. After CO and legal review, the contract must be reviewed/approved in accordance with the Contract Clearance procedures cited in AFFARS Part 5.301. Contract Clearance is not required for competitive acquisitions unless specifically requested by the CO or directed by the Contract Clearance approving authority. Some reasons to request a competitive clearance would be if competition was not realized or significant issues remain unsolved. Noncompetitive acquisitions are required to go through the Contract Clearance process.

e. The review/approving authorities are determined by the dollar threshold and type of program (Major/Selected/Other Programs/Other Contracting). Table I set forth in the AFFARS Part 5301 is applicable to Major, Selected and Other Programs. Table II cited in AFMC 5301.9000 set forth approval thresholds for Base Support /Sustainment (Other Contracting) actions. The format for a Request for Contract Clearance (RCC) is shown at AFFARS part 5301 Figure 1-B. To accompany the request, a package consisting of the negotiated contract, the price negotiation memo, and an abbreviated version of the contract file must be prepared by the contract negotiator/contracting officer. The documents to be included in the RCC version of the contract file are the contractor's certificate of current cost and pricing data, a copy of the audit report, the funding documents, the legal review and the DD Form 350, Individual Procurement Action Report.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The contract award process begins after the selection of the winning contractor by the Source Selection Authority or at the conclusion of negotiations in a noncompetitive acquisition (Block D70).

b. Exit: The contract award process ends at distribution of the approved contractual document to the contractor (Block D29) and other required offices.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The key inputs to the contract award process depend on whether the acquisition was a competitive Source Selection or noncompetitive negotiation.

1. In a Source Selection, the required input prior to a contract award is the Source Selection Decision Document. This document signed by the Source Selection Authority sets forth the rationale in support of the decision, and is sent to the CO as direction to execute the selected contract (Block D70).

2. In a noncompetitive negotiated acquisition the key inputs are the various reviews that take place and the resulting comments and corrections to the contract document and supporting file documents. Depending on the dollar threshold (see AFFARS 1.9011), these reviews may be conducted by some or all of the following: the CO, Judge Advocate General Office (JAG), Business Clearance organizations, the Program Executive Officer (PEO), the Defense Acquisition Board (DAB) and the Contract Clearance authority. These various reviews examine the contract document itself for compliance with all applicable laws, regulations and policies. The contract file and its supporting documents are reviewed to determine if they adequately support and justify the acquisition as negotiated.

b. Outputs: The resulting output of the contract award process, for both a Source Selection and a negotiated acquisition, is a legally binding contract.

10. KEY REFERENCES: In addition to the above listed regulations, AF Regulations 70-30 and 70-15 prescribe contract award policies and procedures and required documentation for the Source Selection process. The Armed Services Pricing Manual (ASPM) describes the contents of the pricing memorandum.

11. IMPLEMENTATION TOOLS:

a. A tool that is quite helpful when it comes to creating the contract file and preparing for the contract clearance process is the review checklist (updated semiannually by ASC/PK Policy Letter). This checklist is intended as a guide for contract negotiators, Contracting Officers and reviewers. The guide is arranged to be consistent with the AF Form 3019 (Contract File Content Checklist). As a minimum, action, events, and/or file documentation suggested by the checklist should be considered prior to contract award. The checklist addresses each file item, provides the applicable reference source in the regulations, and prompts questions to ensure that the file item has been completed and completed properly.

b. One tool to aid in preparing the price negotiation memorandum is a model PNM format generated in ASC/PKF while an AFMC Form 368 provides a PNM checklist.

12. PLANNING GUIDANCE:

a. DURATION: The estimated time frames to award a contract vary greatly with the complexity, dollar amount of the acquisition, and type of acquisition (competitive vs. noncompetitive). A small dollar, noncomplex award could be accomplished in as little as a week or two. In contrast, one large dollar, rather complex, high visibility award took a year from the end of negotiations to obtain the final approval to award the contract. A Contract Clearance review is estimated to take 2-4 days if the file and documents have been previously reviewed at the Business Clearance. If no previous review was accomplished, the Contract Clearance could take several weeks. In addition, if the reviews indicate that changes are required, the contract negotiator would need time to make the corrections and to obtain the Contractors re-execution of the contract document.

b. CONSTRAINTS: A variety of sources could constrain or delay the awarding of the contract. At each review level (CO, JAG, Clearance Authority, DAB), comments and recommendations will be provided to the contract negotiator. Each comment must be addressed and resolved to the reviewer's satisfaction. A CO will not normally sign a contract with unresolved review comments. Before the contractor signs the contract, he will conduct his own review of the contractual documents. If the contractor takes exception to something in the contract, the problem must be resolved before the CO signs the document.

c. RESOURCES: The contract award process is primarily a function performed by the project team/ program office contracts personnel. While some inputs are required from other functional areas, such as program management, finance, and engineering for contract file documents, the responsibility to write the contract and support the acquisition with an adequate contract file falls on the contracting function and, specifically, the Procuring Contracting Officer. If the acquisition was one which required ASC/PKF pricing support (see ASC FAR Supplement 15.805-1), the assigned price analyst is a very critical resource. In addition to prenegotiation pricing efforts such as proposal evaluation and Business Clearance preparation, the price analyst will support all negotiations and be responsible for Contract Clearance documentation and justification.

d. LESSONS LEARNED:

a. As a contract negotiator, it is very important to create a contract file that fully supports the acquisition. All correspondence with the successful contractor (filed chronologically from oldest to most recent) must be included in the file, including all documents that the correspondence reference. If these references are not pertinent to the acquisition and/or the bulk of these references is too great, annotate where these documents can be located.

b. Review the contract file checklist to ensure that all required file items have been included prior to any of the reviews taking place. Some documents that will be scrutinized very closely are discussed below:

1. The pricing memorandum is the primary document which must fully explain the acquisition, the agreement of the parties, and the rationale used to determine that this acquisition is fair and reasonable to both the Government and the contractor. In a Source Selection, the pricing memorandum is called the "Price Competition Memorandum (PCM)," and in a negotiated acquisition, the pricing memorandum is called the "Price Negotiation Memorandum (PNM)."

2. Probably the most important document that the CO will look at to ensure its propriety and accuracy is the funding documents. The CO is obligating the Government to pay by signing the contract and therefore must be very sure that adequate funds are available and that the funds are proper for this type of acquisition.

3. Another very important document to be included in the contract file is the Certificate of Current Cost and Pricing Data. This document is the contractor's certification that all pricing data supplied to the Government is current and accurate as of the date negotiations were completed.

c. In the case where there is a claim against the Government or litigation involving the acquisition, it is critical that the file documentation be complete and accurate. The contract negotiator or the CO may not be available, due to reassignment or resignation, to explain or answer questions regarding the acquisition. The contract file is the official record of the specifics of the acquisition and must stand on its own merits.

e. BEST PRACTICES: In a noncompetitive award, the Business/Contract Clearance process requires that a draft of the contract, preliminary PNM, and appropriate contract file items be written and prepared prior to entering negotiations. This reduces the time required after completion of negotiations to draft the contract and the required backup documentation. Of course, it is very unlikely these documents will remain unchanged by the negotiation, but it requires much less time to correct and revise these documents than to generate them from scratch. It is best to have the file and contract as complete as possible at the time of the Business Clearance.

f. TRAPS: In the instance where an accelerated contract award is required, the contract negotiator should alert the review activities of the urgency well in advance of presenting the documents for review. Instead of waiting for the entire review package to be completed, the reviewer may agree to review documents as the negotiator finalizes them. Reviewers do not like to be rushed and surprised at the same time. Though the contracting community bears most of the responsibility for the award of the contract, the rest of the program team will often be asked to write file memos and review and critique clauses as a result of the contract review.

1. ELEMENT: D75, TBS 1.3.4.0 (IFC 93-3)

2. ELEMENT TITLE: Assign Lead and Support Centers

3. ELEMENT OWNER(S): HQ AFMC/XP

4. ELEMENT STAKEHOLDER(S):o All Product and Logistic Centers, Functional Home Offices, Center XRs and ASC/YX, System Product Offices, AFMC Laboratories, Test Centers, and Single Managers

5. REQUIREMENT: Draft Policy Directive entitled: AFMCCPD XX-XX, AFMC Mission Assignment Process and the accompanying draft Mission Planning Instruction for the Mission Assignment Process. (Both of these documents are in their early stages of evolution, the draft is dated 10 Feb 93 and does not yet have a Policy Directive numerical identifier.) When finalized, this Policy Directive and its attached Mission Planning Instruction will **supersede** the following:

- AFMCR 523-1,Mission Assignment Policy	18 Jun 91
- AFMCR 523-3,AFMC Mission Assignments	24 Jan 90
- HQ OI 523-1, Notification of AFMC Mission Assignments and Reassignments	24 Jul 90
- HQ OI 523-2, Headquarters AFMC Mission Assignment Source Selection Process	17 Jul 89

6. PURPOSE AND OBJECTIVES:

a. PURPOSE: The AFMC Mission Assignment Process was established to ensure all the taskings which come into the command are accomplished by the most capable and qualified organization.

b. OBJECTIVES: The overall objective of establishing and institutionalizing the AFMC Mission Assignment process is to ensure the command does its best to satisfy the customers by providing:

- quality service,
- quality products,
- timely response to customer needs,
- best value to the customer and the command by using the most qualified and appropriate resources,
- consistency.

These objectives are driving forces the command wants to capture through the application of the Mission Assignment Factors.

7. DESCRIPTION: The process described here is identical to the process conducted following the release of the Phase 0 Program Management Directive (PMD) (D21). The main differences are that the category I mission taskings are very rare at this phase of a project, but it is very common around the Milestone 0 vicinity. The other major difference is that the execution of the process described in D21 is more the exception than the rule -- here the process will nearly always be exercised.
The AFMC Mission Assignment Process is the first major action taken by HQ AFMC following the release of the Phase I PMD by Air Staff (B25). The PMD gets the ball rolling by including the phrase "AFMC shall...". With such a tasking in hand, AFMC/XP then makes mission assignments to the appropriate center based on a set of objectively measurable criteria including areas concerning:

- customer requirements,
- technical characteristics of the proposed assignment,
- the present and future posture of the command,
- and the overall needs of the Air Force and DoD.

It is important to remember that this is an AFMC process, it does not apply to assignments to single program managers (these are handled through the PEO/DAC chain of command), or to mission

assignments within a particular laboratory or center which are handled by the respective commander. At ASC, the ASC/CC makes the work assignments within the center through the Review New Work Process where lead and support organizations are finalized (D79).

The Mission Assingment Process is applicable to:

o initial assignments, realignments, and rescissions of AFMC management responsibilities for:
- weapon systems,
- support systems,
- technology groupings,
- Federal Supply Classification (FSC) items,
- special programs,
- special projects;
- initial source of repair (SOR) for major systems and engines.

The assignments made at this level deal primarily with the manner in which the AFMC infrastructure provides resources and capabilities to the single managers and other external customers and allows their management processes to operate.

In order to ensure efficiency and responsiveness in the mission assignment process, AFMC has divided the various types of taskings or work which come into the command into three categories.

- **Category I** assignments are those taskings which are non-Program Management Directive (PMD) generated. They originate with the customer, who takes the task directly to the center that the customer feels is the best qualified to do the work. Basically, Category I taskings by-pass the entire AFMC mission assignment process. (This category of taskings are generally dealt with in the pre-Milestone 0 time frame.)

A *hypothetical* example may help. Assume Air Combat Command (ACC) has walked through their mission area assessment (C1) and preliminary mission need analysis (MNA)(C3) using the strategy-to-task technique. They discover there may be a shortfall in their ability to destroy relocatable targets such as SCUDs. Armed with this information, ACC comes to ASC/XR requesting them to do further analysis on this potential shortfall and to discover, if possible, what areas pertaining to SCUD Killing are deficient, (i.e. Mission Need Analysis). ASC/XR runs an entire battery of analytical excursions using a variety of models. They assess the tactics employed, the airframes tasked with this mission, types and numbers of weapons used, availability of intelligence, etc.
At the same time all this is going on between ACC and ASC, Space Command discovers the same shortfall in their own MAA. In Space Command's shortfall, they think their deficiency lies in their inability to direct a laser energy weapon against a detected SCUD launch point. Space Command engages the services of SMC/XR to accomplish the MNA activities and provide the detailed analysis which show what specific areas in the Space Command's SCUD Killing mission are deficient. SMC/XR's initial analysis hints that the most efficient way to kill SCUDs might not necessarily be from a satellite platform. In order to explore this possibility SMC employs the services of ESC/XR. ESC will do preliminary analysis on the possibility of improving the Communication links with more earthbound strikers such as tanks, surface-to-surface missiles, orbiting aircraft etc.
In this *hypothetical* example, three significant taskings were created, assigned, and accomplished totally outside the AFMC Mission Assignment Process. This is the norm in Pre-Milestone 0 activities. AFMC/XP has no wish to interfere with this practice, without a PMD or some other kind of higher headquarters tasking document; the AFMC Mission Assignment Process is not a player. Other types of taskings which would fall into Category I would be things like: Military Interdepartmental Purchase Requests (MIPRs), another service's request for work which is provided directly to specific Test Center with previously assigned responsibility for that type of test activity, etc.

- **Category II** assignments are generally those taskings resulting from PMD revisions in which similar, related, or follow-on work is directed to a single manager. Category II tasks, like the Category I tasks, already have the management infrastructure in place. The difference here is that Category II tasks operate under a dual management infrastructure. The single manager's infrastructure operates

within the acquisition chain of command and in conjunction with the AFMC infrastructure. AFMC is to provide the single manager (along with other internal and external customers) with the resources and capabilities which might currently be lacking in the single manager's operation. If the single manager already has all the assets he needs to complete this new tasking, then AFMC is out of the picture. Again a *hypothetical* example might make this a little easier to understand. Assume that Wright Laboratory discovers an electronic device which when installed in the avionics suite of a B-1B renders the entire air vehicle as stealthy as a B-2. The concept is reviewed by ACC and they like it and they want it installed on their entire B-1B fleet. The B-1B Program Element Monitor manages to get the B-1B PMD amended to included the integration of the new miracle "cloaking device." Along with the amended PMD comes $100M to install and integrate the devices into the B-1B avionics suite. The devices themselves will be produced by the lab and provided as GFE. The Single Manager for the B-1B would receive this update to the PMD. In order to assess his ability to accomplish this task, he might form an Integrated Product Team (IPT) to research the task and the resources required to complete it. The IPT completes their effort and determines that they will need some assistance from ASC/EN for more avionics engineers, as well as a whole host of folks from the other functional home offices as well. This would be a tasking internal to ASC's structure (Category I type) and would still not require AFMC's involvement. The IPT, however, had no idea as to who would be the best Center for performing the depot level maintenance on the "cloaking devices"-- now the AFMC Mission Assignment kicks-in. (If the IPT had determined that Oklahoma City ALC would do the depot work on the boxes and the single manager would have tasked them to do so, AFMC might still have become involved if Oklahoma City would have told the single manager they were unable to accomplish the new tasking and referred the work back. In this case, the single manager should contact the appropriate HQ AFMC functional organization.) At this point AFMC has several options to pursue including making a new mission assignment through the Category III assignment process.

- **Category III** assignments are the New Mission assignments and generally arrive on AFMC's doorstep via a new PMD. Other less common sources of new mission taskings include the Operational Requirements Document (ORD), other formal requests, or as a result of *Internal management processes*. New assignments include activities for a new program, technology, federal stock class and/or any other new form of workload tasked to AFMC for development, testing, program management, and/or support. Major mission reassignments and those taskings spilling from the Category II example above are also included in this category. Category III assignments are those which normally come to mind when considering the Mission Assignment process.

- EXAMPLES: A couple of last examples should bring home the differences in the three categories. First, the easy one, ACC in conjunction with ASC/XR has completed the MNA for shortfall in the multirole fighter force. The initial analysis showed a serious deficiency starting in the year 2010. ACC drafts and staffs a Mission Needs Statement (MNS) to explore various concepts which could solve this deficiency. The MNS works it way to the Joint Requirements Oversight Council (JROC) where the need is validated. The JROC attaches their assessment of the need and forwards the package to the Defense Acquisition Board (DAB) for the Milestone 0 review. A favorable review results in an Acquisition Decision Memorandum (ADM) which is converted into a PMD by the Air Staff. This PMD tasks AFMC to conduct Concept Exploration and Definition (CE&D) activities necessary to develop a solution set to resolve the deficiency in the current multirole force. In this example the center best capable of handling this tasking would be ASC since they are the aircraft developers. After receiving the PMD, AFMC/XP would review the task and, in this case, send direct to the ASC/CC where it would enter into the ASC New Work Review Process (D79) for internal assignment.

- **Category III (continued):** The second example is not nearly as cut-and-dried as the first. Let's assume the multirole forces CE&D activities from the previous example result in a new aircraft program, the F-XX. The PMD from that Milestone II decision directs AFMC to provide Logistical and Depot Level Support for the future F-XX. IN this case, the Center to receive this tasking is not nearly as clear-cut. Should it be Sacramento because they have the most experience working with composite type airframes or should it be Oklahoma City? Why not Hill, since they have the most experience with previous multirole aircraft? What if Robbins has the most facilities and manpower available to handle such a large task?

An even better example would be a derivative of the National AeroSpace Plane (NASP)? It is part airplane (ASC's home turf) and part space system (SMC's kingdom). To resolve this issue, AFMC/XP runs through the following flow.

The details for each of these 21 boxes as well as the activity flows for the Labs, FSC, and Test mission assignment sub-process flows can be found in the 10 Feb 93 draft of the Mission Planning Instruction for the AFMC Mission Assignment Process. A few of the more critical steps are provided below:
Once the PMD (or other tasking element) is received, an action officer is assigned to determine project validity as a Category III tasking. In this example it is, so the action officer runs the diamond gauntlet and determines the task should go to one of the logistic centers, so he enters the task into the logistic center mission assignment subprocess. The Center Commanders and single managers review the task and assign a series of multiplying weights to be applied against each of the standard measurement factors. For example, if the task were to select the logistics support for a B-3 bomber, then facilities might be a highly weighted item or in this example if the F-XX were a "thermoplastic" jet then technical experience with composite materials would be a big player. The individual centers are objectively measured against each of the factors. AFMC/XPX will then assemble the results and put together a Recommended Assignment Package for review and approval by the Program Management Mission Element Board (PMMEB). The winner is then notified of the results. If all goes according to the book, the most capable logistics center should now be in charge of all F-XX support operations.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance into this process occurs with the receipt of the Milestone I PMD from HQ AF/XOR (B25).

b. Exit criteria have been met when AFMC/XP assigns the new mission task to one of the command centers of excellence for execution. In the case of ASC, the task will enter into the ASC New Work Review process for internal allocation (D79).

9. KEY INPUTS AND OUTPUTS:

a. Key input is the tasking document which is normally the PMD (B25). Taskings may also come from ORDs, verbal requests, or some AFMC internal realignment activity and the resulting documentation.

b. The key output is the New Mission Assignment Notification Letter (Letter of Assignment) to the center awarded the new mission and possibly a notification package to Congress explaining the rational for the decision. The Letter of Assignment is then used by the selected product or logistic center to select the appropriate product and support organization within the center (D79). At ASC the New Work Review Process is the vehicle for making this happen.

10. KEY REFERENCES:

a. Draft Policy Directive entitled: AFMCCPD XX-XX, AFMC Mission Assignment Process and the accompanying draft.

b. Mission Planning Instruction for the Mission Assignment Process. (Both of these documents are in their early stages of evolution, the draft is dated 10 Feb 93 and does not yet have a Policy Directive numerical identifier.)

11. IMPLEMENTATION TOOLS: Each of the center subprocess activity flows are included in the above reference documents along with a very brief description of each of the activity blocks. At the present time this is the extent of the mission assignment tool set.

12. PLANNING GUIDANCE:

a. DURATION: Regardless of acquisition category, the mission assignment process must be completed in no more than 28 days. This is the time required by Air Staff to turn the PMD. Strategic planers would be wise to allow for the full 28 days for tasks where center competition is likely (as in the second Category III example). For tasks that are relatively clear cut plan for half that time.

b. CONSTRAINTS: The constraints to being awarded a new work task are basically the organizations ability to fully satisfy the factors being considered for the task. The factors are generally the same for all tasks, but the weighted multipliers change given the unique characteristics of the task being considered. Again, see the 10 Feb 93 draft of the Mission Planning Instruction for the AFMC Mission Assignment Process for a complete listing of these factors.

c. RESOURCES: Basically the only resources required to accomplish the Mission Assignment Process are the total availability of one AFMC/XPX action officer for 30 days and the availability of all the center CCs (or designated representatives) for a day Program Management Mission Element Board (PMMEB). In order for a center to win a new work assignment, resource availability will be a key factor.

d. LESSONS LEARNED: None identified.

e. BEST PRACTICES: Given the relatively quick turn-around time (by acquisition time scales), it is a good idea for individual organizations to have a ready assessment of their excess capabilities. If a center wants to compete for a piece of new work, they will likely pulse each of their individual organizations to determine their net capability to handle the new task.

f. TRAPS: In regards to the above best practice, do not over estimate. Should a center be awarded a new work assignment based on an over inflated estimate of its capability, the result could be much worse than not getting the assignment at all. It has happened before and will likely happen again. A failure to perform a task due to over estimate in capability could jeopardize the center's credibility in future new work assignments (past performance is one of the measurement factors).

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1. **ELEMENT:** D76, TBS 1.3.6.0 (IFC 93-3)

2. **ELEMENT TITLE:** Establish System Program Office (SPO) (Lead Center)

3. **ELEMENT OWNER(S):** ASC/CC (ASC Only)

4. **ELEMENT STAKEHOLDER(S):** ASC/YX, PEOs, Program Managers

5. **REQUIREMENT:** While no current regulation governs the establishment of a SPO (See Paragraph 10), the intent of the rescinded documents should be followed.

6. **PURPOSE/OBJECTIVES:**

a. Purpose: An Air Force System Program Office is established in order to assemble in a central physical location all of the required management and functional representatives needed to execute a program on a day to day basis.

b. Objectives: The SPO philosophy is to assemble the appropriate number of people with the required management and functional expertise and dedicate them solely to the successful execution of the program.

7. **DESCRIPTION:** After a successful Milestone I/IV decision, a SPO cadre expands into an existing or new SPO to accomplish all the tasks and activities required during the remaining phases of the acquisition. While a new SPO may be formed to support a single program, this is usually only the case in major, high priority acquisitions. In many cases, SPOs are formed to bring together management and functional expertise which would be used to support a number of smaller similar projects or programs (basket SPO).

Under the concept of Integrated Weapon System Management (IWSM), a single manager is established for a particular system, product, or materials acquisition. This single manager is responsible for all aspects of the project/program. To assist the single manager, Centers of Excellence (COE) will be designated for the development/production of projects and the sustainment of projects. The intent of the COE is to have pools of experienced, product-focused people to work the programs.

8. **ENTRANCE/EXIT CRITERIA:**

a. Entrance: The formal establishment of a new System Program Office can start from either a Program Management Directive (PMD) tasking, an Acquisition Decision Memorandum (ADM) issued after a Defense Acquisition Board (DAB), a decision by the Center Commander, or a directive from the Air Force Materiel Command Commander (AFMC/CC). The Integrated Flow Chart (IFC) blocks that illustrate the direction are Block B25, Block D75, and D79. After receipt of direction, the first task of the Center Commander is to assign a Program Director for the effort. This assignment may be influenced by the AFMC Commander. The Program Director staffs and organizes the System Program Office.

b. Exit: Once the initial organization and staffing of the SPO has been accomplished, this block is concluded. The SPO will then begin day to day operations which will include participation with Industry (Block D29) and continued project/program development (Block D30). Industry participation is accomplished by the establishment of a contractual relationship (Block D74). It should be noted that the SPO organization and resources do not remain static; they must constantly change as the program requirements evolve.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: The key inputs in establishing a SPO would be the direction, funding, and the numbers, types, skills, and experience of people required to perform the program tasking. The functional home offices would assess the direction and the project taskings against the manpower authorizations of the assigned acquisition organization, and, if needed, assign additional functional support to the new SPO.

b. Outputs: Program execution.

10. KEY REFERENCES: Air Force Systems Command (AFSC) Regulation 550-12 Activation of System Program Offices (SPO) and AFSC Regulation 550-20, Appropriate Front-Loading of Manpower on Acquisition Programs did constitute the existing policies on SPO formation and manning. Since the AFSC and Air Force Logistics Command (AFLC) merger, these policies have been rescinded. Also, AFMCR 500-11, Integrated Weapon System Management (IWSM) Model for Single Managers.

11. IMPLEMENTATION TOOLS: The ASC/YX SPO Cadre Development Team is currently working to finalize a process flow chart and guidebook to be used by project teams who are establishing either a project team, SPO cadre, or a SPO. The SPO Cadre Development Team will define the process in all functional areas and determine what manpower support is required to initialize a SPO. The process will be flowcharted and documented. The Team's activities, when completed, will constitute the most in-depth analysis and guidance available on the formation and composition of a project team, a SPO Cadre, and a SPO.

12. PLANNING GUIDANCE: The SPO Cadre Development Team plans to address each of these areas in development of our guidance/products. The SPO Cadre Development Team will provide guidance on the estimated number of person-hours, by functional contribution (e.g., systems engineering, acquisition logistics, financial management, Program Management, contracts, security, etc.), required for a Pre-Milestone 0 project team to transition to the post-milestone I/IV formation of the SPO. This guidance will include a breakout of contributions by functional area, along with any special security, facilities, computers (hardware and/or software), or other resources required for the team as it progresses from a project team to a formal SPO. The Project Team and SPO Cadre Guidebook and resource matrix will be accessible through AFAMSUP.

a. DURATION: While the single manager position will remain intact and functioning through system cancellation, retirement, or disposal, the actual location of the program office will most likely change from one location to another. From an Air Force Materiel Command (AFMC) perspective, a weapon system project/program along with the System Program Director (SPD) may transition from a product center (ASC, ESC, SMC, HSC) to one of the logistic centers (WR-ALC, SA-ALC, OC-ALC, OO-ALC, SM-ALC) during its life. In the case of a weapon system modification program, the SPO could be in the single manager's office at one of the ALCs. The philosophy behind the IWSM concept is that as a program evolves, the SPO and the single manager need to be located where it makes the most sense.

b. CONSTRAINTS: The program manager will find that there is always a problem with obtaining personnel. He will not be able to get the people until he can demonstrate a need and by then it is sometimes too late. Constraints imposed by the personnel system, regulations, political situation (e.g., reduction in force, cutbacks, APDP coding on positions, changing job series on vacant positions) force every manager to continually spend much of his time fighting to maintain his present manpower strength, or trying to find qualified personnel to take the place of those who have left. See the Project Team and SPO Cadre Development Guide for addition information on these subjects.

c. RESOURCES: The SPO Cadre Development team has developed a matrix which identifies the various resource requirements for ACAT I aircraft effort project teams, SPO cadres, and SPOs. The matrix can be found the Project Team and SPO Cadre Development Guide.

d. LESSONS LEARNED: The Project Team and SPO Cadre Development Guide includes various lessons learned.

e. BEST PRACTICES: Probably the most important interface that the SPO must nurture is that with the user. One initiative taken on by a program team was to brief the using command on a monthly basis as to program status, issues and problems. This briefing is accomplished by the program manager or one of his deputies. This illustrates to the user that they are a valuable partner in the project team and worthy of high level attention from the program office. Another organization at ASC has initiated a program whereby SPO personnel are given the opportunity to visit the using command and the field activities. They are allowed to inspect and work on the weapon systems they have had a hand in acquiring. The user started this in order for the SPO people to gain a greater understanding of the using environment and a greater appreciation for why user requirements are what they are. See the Project Team and SPO Cadre Development Guide for addition information on this subject.

f. TRAPS: The Project Team and SPO Cadre Development Guide may assist when encountering obstacles in attempts to manage a program office.

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1. ELEMENT: D77, TBS 0.1.9.5 (IFC 93-3)

2. ELEMENT TITLE: Preliminary Cost Estimates

3. ELEMENT OWNER(S): Project Team (TPITs)

4. ELEMENT STOCKHOLDER(S): HQ USAF, Operating Major Commands (MAJCOM)s, ASC/FM, Project Manager

5. REQUIREMENT: Aeronautical Systems Division Cost Anaylysis 173-1, 17 Jan 89, if used to support budget planning process. The requirements remain the same, regardless of Acquisition Category (ACAT) level.

6. PURPOSE/OBJECTIVES:

a. Purpose: The purpose of the cost estimate is to support the PBS process.

b. Objective: The objective is to use the cost estimate to get a wedge in the Air Force PBS at the earliest opportunity.

7. DESCRIPTION: The need to perform a project estimate will depend on the planning offices' ability to interject the estimated project costs into the Air Force PBS. The PBS submission will only address the years included in the Future Years Defense Plan (FYDP). For some projects, this may only represent Concept Exploration (CE) studies, but in other cases it could include a portions of both Demonstration/Validation (D/V) or Engineering and Manufacturing Development (EMD) activities. If it is not expected that the estimate can be utilized for the PBS, this estimating activity may be deferred, but be aware that the Air Staff may be required to submit a funding request even without a product center input. Regardless, the cost analyst should begin collecting data and planning the estimating activities.

a. If the estimate is to be included into the Air Force PBS, it will need to be provided to the Operating Command for review and approval (Block C9), prior to the submission in the PBS process. Historically, the PBS call to Product Center organizations is in the spring summer of odd-numbered years. To satisfy this schedule, the project team should plan to have the initial estimate complete and approved by the Operating Command by the end of May. The estimate can then be incorporated into the field PBS submission to the Operating Command, or the Operating Command may input and support the estimate during their PBS review. The estimate should then be included in the Operating Command PBS to USAF. If approved, the estimate would be included in the Air Force PBS to Office of the Secretary of Defense (OSD), usually in April of the even-numbered years. The inclusion of the estimate into the Air Force PBS is critical in that it is the first step in identifying and programming financial requirements in the budget process.

b. The development of the cost estimate can be grouped into five major activities:

(1) Task definition and planning - this effort will consist of defining the project to be estimated, determining the scope of the estimate, assembling the estimating team and assigning responsibilities, and defining estimate ground rules, assumptions, and constraints. This should be documented in the estimate plan, and approved by project management.

(2) Research - the cost analysts will perform initial data analysis to determine appropriate estimating methodologies, and perform data collection to determine if information can be obtained to support the selected estimating approach(es).

(3) Develop the estimating approach - the preliminary estimating methods are selected, and any estimating tools would be updated or designed, as appropriate.

(4) Perform estimate and cross-checks - the analysts generate the detailed estimates and verify the results with any appropriate cross-checks to ensure the results are logical, reasonable, and complete.

(5) Documentation and approval - the estimate must be documented and provided to project management for approval. This process usually involves presentation of the estimate to the senior managers assigned to the project. After approval, the estimate becomes the official program estimate, and should be the basis for all program estimate "what ifs" and budget submissions until updated by another formal program estimate. Maintaining all cost documentation is vital.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: The need for a project cost estimate at this phase of development will depend on the ability of the project team to get the estimated project costs into the Air Force PBS.

b. Exit: If the cost estimate is for submission to the PBS (B5 and A4), it must first be reviewed and approved by the project manager and the project office with primary responsibility in the operating MAJCOM (C9). For discussion purposes, it is assumed that this will be the Operating Command requirements organization.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: In this early development phase, only minimal technical and programmatic information is available. However, to derive even a top level estimate of potential costs, the project team must develop a minimal program framework, to be priced out. Required information will include system descriptions, development and production schedules, quantities, and notional acquisition strategy. The source of this information would be functional (engineering, manufacturing, contracts, logistics, test, and management personnel) and Operating Command personnel. Although a preferred concept has not been selected, the results of the SCO evaluations (D9) should provide information on a representative program alternative. While it is not the intent of this block to estimate the cost of the preferred concept, the results of the SCO evaluations (Block D9) should provide information on potential program alternatives. This could result in a range of estimates to provide the Operating Command in order for them to select the estimate they can support for the PBS.

b. Output: The results of the analysis should be formally documented and approved by the project director. The documentation should include all ground rules, assumptions, and programmatic information that is
necessary to replicate the estimate and fully support cost relationships utilized. If the estimate will be utilized to support a budget submission, the documentation should be accomplished in accordance with ASDR 173-1 (Develop Preliminary System Concept Options(SCOs) D9), (Write Preliminary Mission Need Statement (MNS) C12).

10. KEY REFERENCES:

a. AFR 173-1, The Air Force Cost Analysis Program. Specifies the objectives and functions, and assigns responsibilities for the conduct of the Air Force Cost Analysis program.

b. ASDR 173-1, Aeronautical Systems Division Cost Analysis Program, 17 Jan 89. Provides policy, procedures, concepts, and responsibilities to ASC organizations that perform cost analysis, develop cost estimates, and conduct cost studies.

11. IMPLEMENTATION TOOLS:

a. The AFSC Cost Estimating Handbook, Volume I & II. Provides general guidance for estimating and estimate documentation information.

b. The AFSC Financial Management Handbook for financial information, the AFSC Cost Estimating Handbook, volume 2, provides information for estimating ASC type activities/programs.

c. The ASC/FM Cost Workstation for an automation aid and application software, and

d. The ASC Cost Data Center for historical cost data, cost models, and other cost related materials and references.

12. PLANNING GUIDANCE:

a. DURATION: The estimating activities at this point are typically based on parametric analysis and should take 2 to 4 months, depending upon program complexity, data availability, and number of analysts assigned.

b. CONSTRAINTS: The greatest limitations in the performance of the estimate are lack of program definition and the lack of reliable historical cost information.

c. RESOURCES: The estimate is usually performed by one or two cost analysts, working the estimate as a primary duty. Engineering, logistics, and program management personnel would each need to provide 40 - 80 hours each for technical support. Computer assets are considered a necessity for both computation and documentation.

d. LESSONS LEARNED: The product center cost staff should be contacted to have a staff cost analyst assigned as a focal point to support the analysis effort. This analyst should be a valuable resource in aiding in data searches and estimating methodology selection as well as supporting management reviews. Further, the cost staff may be able to provide analysts to support or perform elements of the estimate. It should be expected that many program variations and estimating excursions will be performed to support the decision making process - each of these should be documented and tracked, by both program content and estimate results. If contractors are performing the concept studies, they are usually a good source of information.

e. BEST PRACTICES:

(1) The cost analyst should develop a comprehensive estimate plan which defines program content, describes the estimating approach and the estimate schedule, identifies estimate team members and assigns responsibilities, and identifies any estimate groundrules and assumptions.

(2) The project office should be able to improve the quality and accuracy of the estimate if it can anticipate any cost estimating issues and problems at the earliest opportunity. If this can be done, the project officers should identify these estimating needs to the product center cost staff. If the cost staff can be notified early enough, directed cost research or data collection might be undertaken to support the project requirements. Moreover, the staff might be able to obtain the research support from either Air Force or OSD cost analysis organizations.

(3) Be sure to provide a detailed description of the programmatic scope of what is being costed - What is in and what is out of the estimate. Scope growth is biggest driver of cost growth in early development programs. Use the element checklist in appendix F of volume I of the AFSC Cost Handbook to ensure that all applicable areas are costed.

f. TRAPS: It is imperative that the cost analysts identify methodologies and data requirements as soon as possible so that these needs can be made known. If this information is not available, work-around must be made to maintain the estimating schedule and support the PBS input schedule. It's imperative to establish and document appropriate groundrules and assumptions for use by OSD or the Air staff. Also, it is essential that the estimating and functional team members be carefully selected, so

that all necessary information can be derived to support the estimating process. Additionally, it is critical that others don't perceive this estimate as an official baseline program estimate, since alternatives have not all been selected.

1. **ELEMENT**: D 78, 1.1.3.0 (IFC 93-3)

2. **ELEMENT TITLE**: Reveiw New Work

3. **ELEMENT OWNER(S)**: ASC/CC.

4. **ELEMENT STAKEHOLDER(S)**: Primary: Acquisition Organization; Secondary: ASC/CC, Customer, Supplier(s), and any other affected entity that may have a material interest in the work under consideration.

5. **REQUIREMENT**: AFSCR 550-14, Acquisition Strategy Panel (ASP) Policy Issues Meeting of 19 Dec 91.

6. **PURPOSE/ OBJECTIVES**: A corporate review process for both accepting and allocating new work for ASC Acquisition Organizations. The object of the process is to match new work requirements with available resources.

7. **DESCRIPTION**: (The complete New Work Process Diagram and Block Description is available from ASC/CYN or ASC/YXP.)

a. The process begins when new work enters an ASC acquisition organization (Acq Org). New work can come from a wide variety of sources. In conformance with the intent of this data sheet, the most commonly conceptualized source is by way of a formal Program Management Document (PMD). This path would come to ASC by way of a formal Mission Assignment as a result of the Mission Assignment Process at HQ/AFMC (D 21). The first step requires the Acq Org to evaluate the new work for "appropriateness." This check ensures the new work is compatible with the mission of both ASC and Acq Org. From this evaluation, the Acq Org can answer the questions, "Should the New Work be done?" and "Should the New Work be done here?". If either answer is "NO," rejection rationale is documented and the package is forwarded to ASC Command section for disposition. If the answers are "YES," the Acq Org, in conjunction with functional staffs and other resource owners, evaluates the resource availability to meet the anticipated requirements. This evaluation answers the question "Can the New Work be done?". If the answer is "NO," a statement of shortfall is documented and the package is again forwarded to the Product Center (ASC) Command Section for disposition. Notwithstanding the inherent right to redirect the New Work, the Command section typically concurs and organization workload and possibly manpower baselines would be adjusted.

b. There are cases where the answer to one of the "screening" questions is "NO." Whether the package subsequently arrives at the Command Section with rejection rationale or a statement of shortfall, alternative dispositions include forwarding to another Acq Org for evaluation, returning to the original organization with additional direction or requests for clarification of the "NO," returning to the customer explaining the reason for the return, or submitting to the Corporate Level Review portion of the recommended process (as administered by ASC/CYN, the process caretaker).

c. The Corporate Level Review portion of the process begins by activating the Caretaker (ASC/CYN) to assemble a working group of the affected organizations. The working group is tasked to work the unresolved issues and recommend a solution to the Command Section. The Command Section may then accept the working group resolution or have the ASC Council review the issues. At this point, the final decision is reached that resolves the issue and allows for the "Task Go Ahead" or returns the new work to the customer with an explanation of the unresolvable issue(s). Returning new work to the customer allows the customer to make programmatic changes that could eliminate the obstacles keeping ASC from accepting and initiating the new work. Notification of acceptance of new work, or a formal Mission Assignment would than support the next step in this flow process, Update Phase "0" Plans (D-22).

d. This process was approved by the ASC ASP Board in Dec 92. The process flow chart and accompanying block descriptions of activities within and relationships between activity blocks completes Phase I of process implementation. Phase II remains in work with the process caretaker, ASD/CYN. Full development of this process depends on the completion of Phase II. Currently, the process flow chart and block descriptions are sufficient for use within an acquisition organization. As of this writing, this process has not been exercised as a standard method of reviewing and allocating new work.

8. ENTRANCE/EXIT CRITERIA:

a. Entrance: Any work that enters an Acquisition Organization that exceeds their Directed Mission, Workload Baseline, or Manpower Baseline, or tasking from the Command Section or ASC Council.

b. Exit: Notification of new work accepted to the Command Section, new work package forwarded to the Command section with a Statement of Shortfall, Task Go Ahead from the Command Section or ASC Council, or notification from the Caretaker that the new work package has been referred back to the customer for changes in requirements.

9. KEY INPUTS AND OUTPUTS:

a. Inputs: A letter of assignment from the Air Force Materiel Command Mission Assignment Process (Block D-21, Assign Lead and Support Centers[AFMC]) by way of ASC/CC, or any work that exceeds the organizations Directed Mission, Workload Baseline, Manpower Baseline. In general, outside the formal channel from a Mission Assignment from AFMC through ASC/CC, work may come from many source, (i.e. internal (ECP, rework, etc.), or external (changing customer needs, emerging technologies, change of threat, etc.)).

b. Outputs: The Acquisition Organizations acceptance of the New Work, ASC Command section acceptance of notification of New Work from the Acquisition Organization, Task Go Ahead from the Command section or ASC Council, or establishment of a System Program Office (SPO). Within the process, the capability exists for the ASC/CC to return new work to its origin for rework of requirements and with conditions for reconsideration by ASC.

10. KEY REFERENCES: ASCR 800-3, New Work CPT Process Diagram, New Work CPT Process Guide.

11. IMPLEMENTATION TOOLS: As of this writing (May 93), ASC/CYN as Caretaker of this process, has the Acquisition Strategy Panel (ASP) action item to write and bring into official use the implementation guide to support the New Work Review Process.

12. PLANNING GUIDANCE:

a. DURATION: None established until adaptation of implementation guide currently in work by ASC/CYN, the New Work Review Process Caretaker.

b. CONSTRAINTS: Further development of a working definition for Directed Mission, Workload Baseline and Manpower Baseline.

c. RESOURCES: ASC/CYN has to staff, write, and test the implementation guide. A detailed explanation of the process flow and process action block descriptions are available through ASC/CYN or ASC/YXP.

d. LESSONS LEARNED: None Identified. This process has not been matured to the point where it can be applied to a new work proposal.

e. BEST PRACTICES: This data sheet description of the New Work Review Process is a best practice.

f. TRAPS: None Identified. The process has not been fully applied to a trial situation for debugging. The debugging process is intended for Phase II Implementation.

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1. **ELEMENT**: D 79, TBS 1.3.5.0 (IFC 93-3)

2. **ELEMENT TITLE**: Review New Work

3. **ELEMENT OWNER(S)**: ASC/CC.

4. **ELEMENT STAKEHOLDER(S)**: Primary: Acquisition Organization; Secondary: ASC/CC, Customer, Supplier(s), and any other affected entity that may have a material interest in the work under consideration.

5. **REQUIREMENT**: AFSCR 550-14, Acquisition Strategy Panel (ASP) Policy Issues Meeting of 19 Dec 91.

6 **PURPOSE/ OBJECTIVES**: A corporate review process for both accepting and allocating new work for ASC Acquisition Organizations. The object of the process is to match new work requirements with available resources.

7 **DESCRIPTION**: (The complete New Work Process Diagram and Block Description is available from ASC/CYN or ASC/YXP.)

a. The process begins when new work enters an ASC acquisition organization (Acq Org). New work can come from a wide variety of sources. In conformance with the intent of this data sheet, the most commonly conceptualized source is by way of a formal Program Management Document (PMD). This path would come to ASC by way of a formal Mission Assignment as a result of the Mission Assignment Process at HQ/AFMC (D 21). The first step requires the Acq Org to evaluate the new work for "appropriateness." This check ensures the new work is compatible with the mission of both ASC and Acq Org. From this evaluation, the Acq Org can answer the questions, "Should the New Work be done?" and "Should the New Work be done here?". If either answer is "NO," rejection rationale is documented and the package is forwarded to ASC Command section for disposition. If the answers are "YES," the Acq Org, in conjunction with functional staffs and other resource owners, evaluates the resource availability to meet the anticipated requirements. This evaluation answers the question "Can the New Work be done?". If the answer is "NO," a statement of shortfall is documented and the package is again forwarded to the Product Center (ASC) Command Section for disposition. Notwithstanding the inherent right to redirect the New Work, the Command Section typically concurs and organization workload and possibly manpower baselines would be adjusted.

b. There are cases where the answer to one of the "screening" questions is "NO". Whether the package subsequently arrives at the Command Section with rejection rationale or a statement of shortfall, alternative dispositions include forwarding to another Acq Org for evaluation, returning to the original organization with additional direction or requests for clarification of the "NO," returning to the customer explaining the reason for the return, or submitting to the Corporate Level Review portion of the recommended process (as administered by ASC/CYN, the process caretaker).

c. The Corporate Level Review portion of the process begins by activating the Caretaker (ASC/CYN) to assemble a working group of the affected organizations. The working group is tasked to work the unresolved issues and recommend a solution to the Command Section. The Command Section may then accept the working group resolution or have the ASC Council review the issues. At this point, the final decision is reached that resolves the issue and allows for the "Task Go Ahead" or returns the new work to the customer with an explanation of the unresolvable issue(s). Returning new work to the customer allows the customer to make programmatic changes that could eliminate the obstacles keeping ASC from accepting and initiating the new work. Notification of acceptance of new work, or a formal Mission Assignment would than support the next step in this flow process, Establish a System Program Office (D-76).

d. This process was approved by the ASC ASP Board in Dec 92. The process flow chart and accompanying block descriptions of activities within and relationships between activity blocks completes Phase I of process implementation. Phase II remains in work with the process caretaker, ASD/CYN. Full development of this process depends on the completion of Phase II. Currently, the process flow chart and block descriptions are sufficient for use within an acquisition organization. As of this writing, this process has not been exercised as a standard method of reviewing and allocating new work.

8 ENTRANCE/EXIT CRITERIA:

a. Entrance: Any work that enters an Acquisition Organization that exceeds their Directed Mission, Workload Baseline, or Manpower Baseline, or tasking from the Command section or ASC Council.

b. Exit: Notification of new work accepted to the Command section, new work package forwarded to the Command section with a Statement of Shortfall, Task Go Ahead from the Command Section or ASC Council, or notification from the Caretaker that the new work package has been referred back to the customer for changes in requirements.

9 KEY INPUTS AND OUTPUTS:

a. Inputs: A letter of assignment from the Air Force Materiel Command Mission Assignment Process (Block D-75, Assign Lead and Support Centers (AFMC)) by way of ASC/CC, or any work that exceeds the organizations Directed Mission, Workload Baseline, Manpower Baseline. In general, outside the formal channel from a Mission Assignment from AFMC through ASC/CC, work may come from many source, (i.e. internal (ECP, rework, etc.), or external (changing customer needs, emerging technologies, change of threat, etc.)).

b. Outputs: The Acquisition Organizations acceptance of the New Work, ASC Command Section acceptance of notification of New Work from the Acquisition Organization, Task Go Ahead from the Command Section or ASC Council, or establishment of a System Program Office (SPO). Within the process, the capability exists for the ASC/CC to return new work to its origin for rework of requirements and with conditions for reconsideration by ASC.

10. KEY REFERENCES: ASCR 800-3, New Work CPT Process Diagram, New Work CPT Process Guide.

11. IMPLEMENTATION TOOLS: As of this writing (May 93), ASC/CYN as Caretaker of this process, has the Acquisition Strategy Panel (ASP) action item to write and bring into official use the implementation guide to support the New Work Review Process.

12. PLANNING GUIDANCE:

a. DURATION: None established until adaptation of implementation guide currently in work by ASC/CYN, the New Work Review Process Caretaker.

b. CONSTRAINTS: Further development of a working definition for Directed Mission, Workload Baseline and Manpower Baseline.

c. RESOURCES: ASC/CYN has to staff, write, and test the implementation guide. A detailed explanation of the process flow and process action block descriptions are available through ASC/CYN or ASC/YXP.

d. LESSONS LEARNED: None identified. This process has not been matured to the point where it can be applied to a new work proposal.

e. BEST PRACTICES: This data sheet description of the New Work Review Process is a best practice.

f. TRAPS: None identified. The process has not been fully applied to a trial situation for debugging. The debugging process is intended for Phase II Implementation.

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APPENDIX E

LIST OF ACRONYMS

ACAT	-	Acquisition Category (level)
ACC	-	Air Combat Command
ADM	-	Acquisition Decision Memorandum; Advanced Development Model
ADP	-	Automated Data Processing
AETC	-	Air Education and Training Command
AFAC	-	Air Force Acquisition Circular
AFAE	-	Air Force Acquisition Executive
AFAM	-	Air Force Acquisition Model
AFCAA	-	Air Force Cost Analysis Agency
AFFARS	-	Air Force Federal Acquisition Regulation Supplement
AFI	-	Air Force Instruction
AFISA	-	Air Force Intelligence Support Agency
AFIT	-	Air Force Institute of Technology
AFLC	-	Air Force Logistics Command
AFMC	-	Air Force Materiel Command
AFOTEC	-	Air Force Operational Test and Evaluation Center
AFPG	-	Air Force Planning Guidance
AFR	-	Air Force Regulation
AFSAA	-	Air Force Studies and Analysis Agency
AFSARC	-	Air Force Systems Acquisition Review Council
AFSC	-	Air Force Systems Command; Armed Forces Staff College
AFSCR	-	Air Force Systems Command Regulation
ALC	-	Air Logistics Center
ALLCARS	-	Automated Lessons Learned Capture & Retrieval System
AMS	-	Acquisition Management System
AP	-	Acquisition Plan
APB	-	Acquisition Program Baseline
APDP	-	Acquisition Professional Development Program
ARPA	-	Advanced Research Projects Agency
ASC	-	Aeronautical Systems Center
ASP	-	Acquisition Strategy Panel
ASPM	-	Armed Services Pricing Manual
ASR	-	Acquisition Strategy Report
ASUSD(P&A)	-	Assistant Under Secretary of Defense for Programs & Acquisition
ATD	-	Advanced Technology Demonstration
ATPS	-	Automated Test Planning System
ATTD	-	Advanced Technology Transition Demonstration (program)
BAA	-	Broad Agency Announcement
BAFO	-	Best and Final Offer
BCD	-	Baseline Concept Description; Baseline Concept Document
BES	-	Budget Estimate Submission
BOCO	-	Buying Office Contracting Official
BPAC	-	Budget Program Activity Code
BPPBS	-	Biennial Programming, Planning, and Budgeting System

CAE	-	Component Acquisition Executive
CAG	-	Concept Action Group; Cost Analysis Group
CAIG	-	Cost Analysis Improvement Group (DOD)(OSD)
CALS	-	Computer-Aided Acquisition & Logistics Support
CAP	-	Capability Assessment Package; Concept Assessment Package; Contract Acquired Property
CARD	-	Cost Analysis Requirements Document
CARS	-	Consolidated Acquisition Reporting System
CBD	-	Commerce Business Daily
CBT	-	Computer Based Training
CCA	-	Component Cost Analysis (formally referred to as ICE)
CCB	-	Change Control Board; Configuration Control Board
CDRL	-	Contract Data Requirements List
CE	-	Concept Exploration; Critical Experiment; Current Estimate
CE&D	-	Concept Exploration & Definition
CER	-	Cost Estimating Relationship
CG	-	Chairman's Guidance (document)
C3ISC	-	Command, Control, Communications, & Intelligence Systems Committee
CIA	-	Central Intelligence Agency
CICA	-	Competition in Contracting Act (1984)
CIM	-	Corporate Information Management
CINC	-	Commander in Chief
CIP	-	Component Improvement Program (DIA); Critical Intelligence Parameter
CITIS	-	Contractor Integrated Technical Information Service
CJCS	-	Chairman of the Joint Chiefs of Staff
CMN	-	Corporate Management Network; Critical Mission Need
CO	-	Contracting Officer (Air Force)
COD	-	Cooperative Development and/or Cooperative Opportunities Document
COE	-	Center of Excellence
COEA	-	Cost and Operational Effectiveness Analysis
CONOPS	-	Concept of Operations
COTS	-	Commercial Off the Shelf
CPA	-	Chairman's Program Assessment
CPAF	-	Cost-Plus-Award Fee
CPFF	-	Cost-Plus-Fixed Fee
CPIF	-	Cost-Plus-Incentive Fee
CPT	-	Critical Process Team
CR	-	Clarification Request; Cost Reimbursement
CRLCMP	-	Computer Resources Life Cycle Management Plan
CRWG	-	Computer Resources Working Group
CSAF	-	Chief of Staff of the Air Force
CSC		Computer Software Component; Conventional Systems Committee
CSWG	-	Commercial Supportability Working Group
CTS	-	Critical Intelligence Parameters Threat Status

DA	-	Department of the Army
DAB	-	Defense Acquisition Board
DAC	-	Designated Acquisition Commander
DAE	-	Defense Acquisition Executive
DAM	-	Defense Acquisition Management
DCS	-	Deputy Chief of Staff
DEA	-	Data Exchange Agreement
DFARS	-	Defense Federal Acquisition Regulation Supplement
DFAS	-	Defense Finance and Accounting Service

DI	-	Director of Intelligence
DIA	-	Defense Intelligence Agency
DIS	-	Defense Investigative Service
DMRD	-	Defense Management Report Decision
DOD	-	Department of Defense
DODD	-	Department of Defense Directive
DOE	-	Department of Energy
DOT&E	-	Developmental Operational Test and Evaluation
DPG	-	Defense Planning Guidance
DPML	-	Deputy Project Manager for Logistics
DPRB	-	Defense Planning and Resource Board
DR	-	Deficiency Report
DRFP	-	Draft Request for Proposal
DSMC	-	Defense Systems Management College
DTC	-	Design-to-Cost
DT&E	-	Development Test & Evaluation
DTE	-	Developmental Test and Evaluation
DTIC	-	Defense Technical Information Center
DUSD(IP)	-	Deputy Under Secretary of Defense (International Programs)
EEFI	-	Essential Elements of Friendly Information
EMD	-	Engineering & Manufacturing Development
FAR	-	Federal Acquisition Regulation
FEBA	-	Forward Edge of the Battle Area (obsolete - see FLOT)
FLOT	-	Forward Line of Troops
FMS	-	Foreign Military Sales
FOA	-	Field Operating Agency
FOC	-	Full Operational Capability
FSC	-	Federal Supply Classification
FTD	-	Foreign Technology Division
FY	-	Fiscal Year
FYDP	-	Future Year Defense Program
GFE	-	Government Furnished Equipment
GFP	-	Government Furnished Property
GOCO	-	Government-Owned, Contractor-Operated (facility)
GUM	-	Guidance Update Memorandum
HIFI	-	Helpful Information for Industry
HOI	-	Headquarters Operating Instruction (AF)
HSI	-	Human Systems Integration
IASP	-	Integrated Acquisition Strategy Process
ICA	-	Independent Cost Analysis
ICD	-	Interface Control Document/Drawing
ICE	-	Independent Cost Estimate
ICO	-	Intelligence Counterpart Officer
IFC	-	Integrated Flow Chart
ILSM	-	Integrated Logistics Support Manager

ILSP	-	Integrated Logistics Support Plan
IMP	-	Integrated Master Plan
IMPACTS	-	Integrated Manpower, Personnel and Comprehensive Training & Safety
IMS	-	Integrated Master Schedule
IOC	-	Initial Operating Capability
IPA	-	Integrated Program Assessment
IPP	-	IMPACTS Program Plan; Industrial Preparedness Planning; Industrial Preparedness Program
IPR	-	Intelligence Production Requirement; In Progress/Process Review
IPS	-	Integrated Program Summary
IPT	-	Independent Product Team; Integrated Product Team
IR&D	-	Independent Research & Development
ISD	-	Information Systems Directive
ISWG	-	Intelligence Support Working Group
IWSM	-	Integrated Weapon System Management
IWSMP	-	Integrated Weapon System Master Plan
IWSP	-	Integrated Weapon System Planning
J&A	-	Justification and Approval
JAG	-	Judge Advocate General
JPATS	-	Joint Primary Aircraft Training System
JPD	-	Joint Potential Designator
JRD	-	Justification Review Document
JROC	-	Joint Requirements Oversight Council
JSCP	-	Joint Strategic Capabilities Plan
JSR	-	Joint Strategy Review
KO	-	Contracting Officer (Navy)
KR	-	Contractor
KT	-	Contract
LCC	-	Life Cycle Cost
LLD	-	Lessons Learned Database
LMIS	-	Logistics Management Information System
LSA	-	Logistics Support Analysis
LSAR	-	Logistics Support Analysis Record
MAA	-	Mission Area Analysis; Mission Area Assessment
MADP	-	Mission Area Development Plan
MAF	-	Mission Assignment Factor
MAJCOM	-	Major Command (AF)
MAPAT	-	Mission Assignment Process Action Team
MCR	-	Manufacturing Capabilities Requirement (assessment)
MDA	-	Milestone Decision Authority
MDAP	-	Major Defense Acquisition Program
MFP	-	Major Fielding Plan; Major Force Program
MGM	-	Materiel Group Manager
MIG	-	Major Issues Guidance
MIL	-	Military
MIL-SPEC	-	Military Specification
MIL-STD	-	Military Standard

MIPR	-	Military Interdepartmental Purchase Request
MNA	-	Mission Need Analysis
MNS	-	Mission Need Statement
MOA	-	Memorandum of Agreement
MOE	-	Measure of Effectiveness
MOO	-	Measures of Outcome
MOP	-	Measure of Performance; Memorandum of Policy
MPC	-	Most Probable Cost
MPLCC	-	Most Probable Life Cycle Cost
MR	-	Modification Request
MRFP	-	Multirole Forces Project
MRSA	-	Material Readiness Support Activity
MRTFB	-	Major Range and Test Facility Base
MS	-	Milestone
NAECON	-	National Aerospace Electronics Convention
NAIC	-	National Air Intelligence Center
NASP	-	National Aerospace Plane
NCP	-	Nuclear Certification Plan
NDI	-	Nondevelopmental Item
NMSD	-	National Military Strategy Document
NOCA	-	Notice of Contract Award
NSA	-	National Security Agency
NWR	-	New Work Review
O&S	-	Operation and Support
OAS	-	Office of Aerospace Studies; Office of the Assistant Secretary
ODC	-	Ozone Depleting Chemical
ODS	-	Ozone Depleting Substance
OPR	-	Office of Primary Responsibility
ORD	-	Operational Requirements Document
OSD	-	Office of the Secretary of Defense
OT&E	-	Operational Test and Evaluation
OTP	-	Operational Test Plan
PAA	-	Program Alternatives Analysis
PA&E	-	Program, Analysis and Evaluation
PB	-	President's Budget; Program Baseline
PBD	-	Program Budget Decision
PC	-	Personal Computer; Product Center; Program Coordinator
PCM	-	Price Competition Memorandum; Program Cost Management
PCO	-	Procuring Contracting Officer
PD	-	Program/Project Director
PDM	-	Program Decision Memorandum
PDP	-	Program Decision Package; Program Development Plan
PE	-	Planning Estimate; Program Element
PEM	-	Program Element Monitor (AF)
PEO	-	Program Executive Officer
PERT	-	Program Evaluation and Review Technique
PGM	-	Program Group Manager
P-HSI	-	Preliminary Human Systems Integration Plan
P-IPP	-	Preliminary IMPACTS Program Plan

PLCCE	-	Program Life Cycle Cost Estimate
PM	-	Program/Project Manager
PMD	-	Program Management Decision; Program Management Directive
PMMA	-	Product Management Manpower Allocation
PMMEB	-	Program Management Mission Element Board
PMP	-	Procurement Management Plan
PMS	-	Procurement Management System; Program Management System
PMSS	-	Program Manager's Support System
PNM	-	Price Negotiation Memorandum
POC	-	Point of Contact
POE	-	Program Office Estimate
POM	-	Program Objective Memorandum
PPAP	-	Pollution Prevention Action Plan
PPBS	-	Planning, Programming, and Budget System
PPI	-	POM Preparation Instruction
PPP	-	Program Protection Plan
PR	-	Purchase Request
PRAG	-	Performance Risk Analysis Group
PRDA	-	Program Research and Development Announcement
PSCO	-	Preliminary Systems Concept Option
PSM	-	Procurement Strategy Model; Professional Staff Member (Congress)
PTO	-	Principal Test Organization
QA	-	Quality Assurance
QC	-	Quality Control
QNA	-	Quantitative Needs Assessment
RAPID	-	Requirements Analysis Program Interface Design
RAS	-	Requirements Allocation Sheet
RAT	-	Resource Allocation Team
RCAT	-	Resource Allocation Category
RCC	-	Request for Contract Clearance
RCM	-	Requirements Correlation Matrix (AF)
RDT&E	-	Research, Development, Test and Evaluation
RFI	-	Ready for Issue; Request for Information
RFP	-	Request for Proposal
RFQ	-	Request for Quotation
RMP	-	Risk Management Plan
ROM	-	Read Only Memory; Rough Order of Magnitude
RTO	-	Responsible Test Organization
S&T	-	Science and Technology
SAE	-	Service Acquisition Executive
SAF	-	Secretary of the Air Force
SAF/AQ	-	Assistant Secretary of the Air Force for Acquisition
SAG	-	Studies Advisory Group (Army)
SAP	-	Special Access Program
SBD	-	Systematic Task Diagram
SBIR	-	Small Business Innovation Research
SCO	-	System Concept Option
SCP	-	Service Cost Position; System Concept Paper
SECAF	-	Secretary of the Air Force

SECDEF	-	Secretary of Defense
SE/CM	-	Systems Engineering/Configuration Management
SEMP	-	Systems Engineering Management Plan
SEMS	-	Systems Engineering Master Schedule
SEP	-	Systems Engineering Process
SIC	-	Standard Industrial Classification
SLIC	-	Systems & Logistics Integration Capability
SMM	-	System Maturity Matrix
SMP	-	Security Master Plan
SOR	-	Source of Repair; Specific Operational Requirement
SOW	-	Statement of Work
SPD	-	System Program/Project Director
SPO	-	System Program/Project Office (AF)
SRB	-	Solicitation Review Board
SRD	-	System Requirements Document
SS	-	Source Selection
SSA	-	Software Support Agency; Source Selection Authority
SSAC	-	Source Selection Advisory Council
SSC	-	Strategic Systems Committee
SSEB	-	Source Selection Evaluation Board
SSET	-	Source Selection Evaluation Team
SSMG	-	Source Selection Management Group
SSMP	-	System Security Master Plan
SSP	-	Source Selection Plan
STA	-	System Threat Assessment
STAR	-	System Threat Assessment Report
STD	-	Software Test Description; Standard
STIP	-	Strategic Technology Investment Plan
SYSREP	-	Systems Representative

TAP	-	Technical Area Plan
TAR	-	Threat Assessment Report
TBS	-	Task Breakdown Structure
TD	-	Test Director
T&E	-	Test & Evaluation
TED	-	Threat Environment Description; Threat Environment Document
TEMP	-	Test and Evaluation Master Plan
TEP	-	Threat Environment Projection
TIRR	-	Technology Investment Recommendation Report
TISC	-	Threat Intelligence Support Council
TLS	-	Time Line Sheet
TM	-	Test Manager
TMC	-	Technical Management Course; Test Management Council
TMP	-	Technology Master Plan
TPD	-	Threat Planning Document
TPIPT	-	Technical Planning Integrated Product Team
TPM	-	Technical Performance Measurement
TPWG	-	Test Plan Working Group
TQ	-	Total Quality
TSG	-	Threat Steering Group
TTO	-	Technology Transition Office
TWG	-	Threat Working Group

USAF	-	United States Air Force

USD(A)	-	Under Secretary of Defense for Acquisition
USD/AO	-	Under Secretary of Defense Action Officer
VCJCS	-	Vice Chairman of the Joint Chiefs of Staff
VCSA	-	Vice Chief of Staff (Army)
VCSAF	-	Vice Chief of Staff (Air Force)
WBS	-	Work Breakdown Structure
WL	-	Wright Laboratory
WSMP	-	Weapon System Master Plan

APPENDIX F

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PDP GUIDE BOOK

Appendices

APPENDIX G

Process Guide Comment/Suggestion Form

We would like your help to make this guide a more complete, accurate and useful product for everyone to use. Please provide any relevant comments, suggestions, acquisition lessons learned, best practices or traps from your experience which you believe could improve this product and help others. If you see something which is out of date or incorrect, please tell us so we can change it. Use additional sheets if necessary. **When complete, fold so the address on the rear is visible, staple, add postage (if necessary) and drop in the mail.**

SUGGESTIONS/COMMENTS:

LESSONS LEARNED/BEST PRACTICES/TRAPS

NAME:_____ Office/Phone:_____

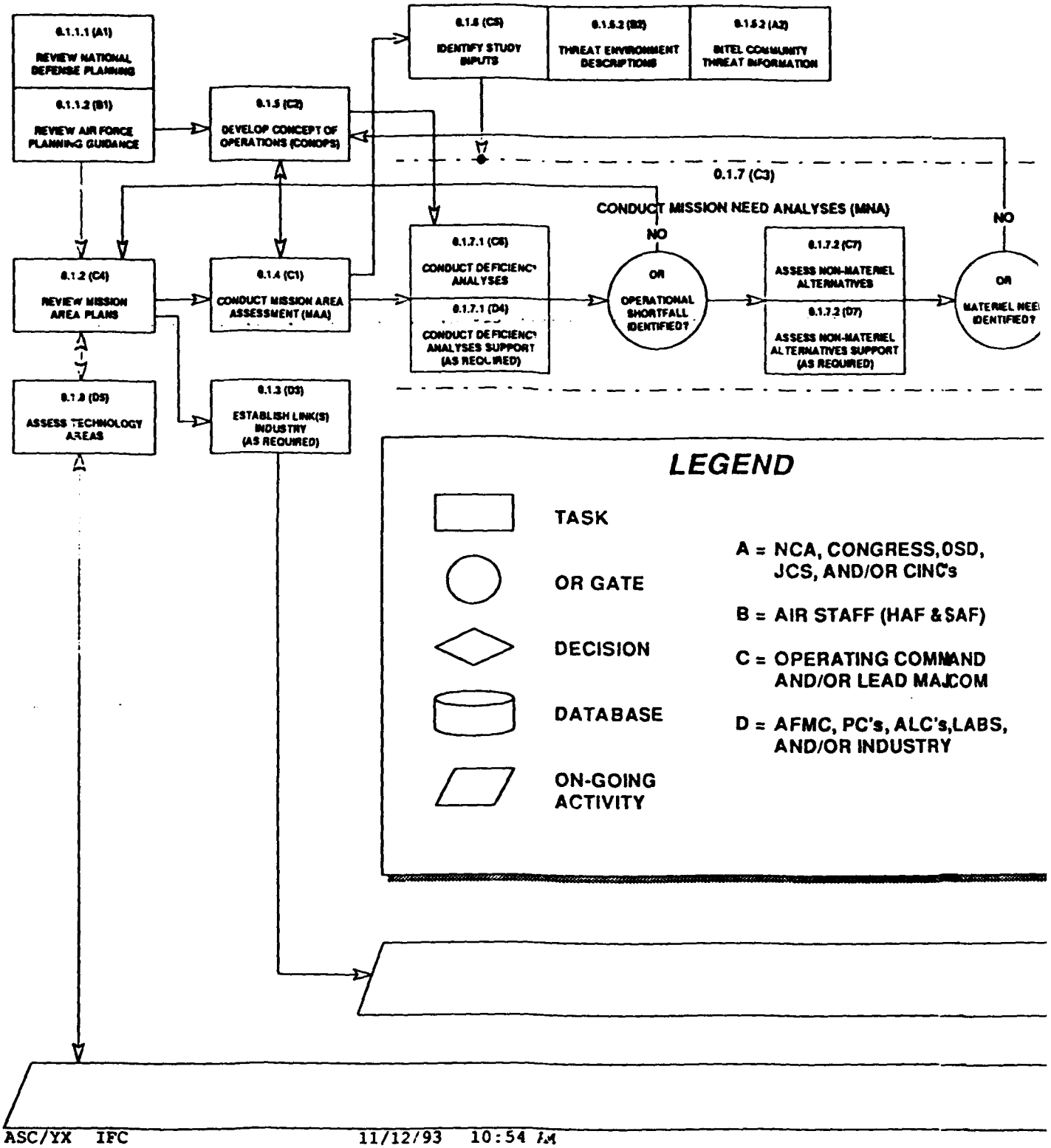
Is it okay of we call you regarding these inputs? (circle one) YES NO

THANK YOU!

ASC YXD Bldg 2041
ATTN: Program Development Process Team
2511 L Street
WPAFB OH 45433-7503

ASC/YX PROGRAM DEVELOPMEN

FOR MORE INFORMATION CONTACT ASC/YXDP, DSN 785-1847



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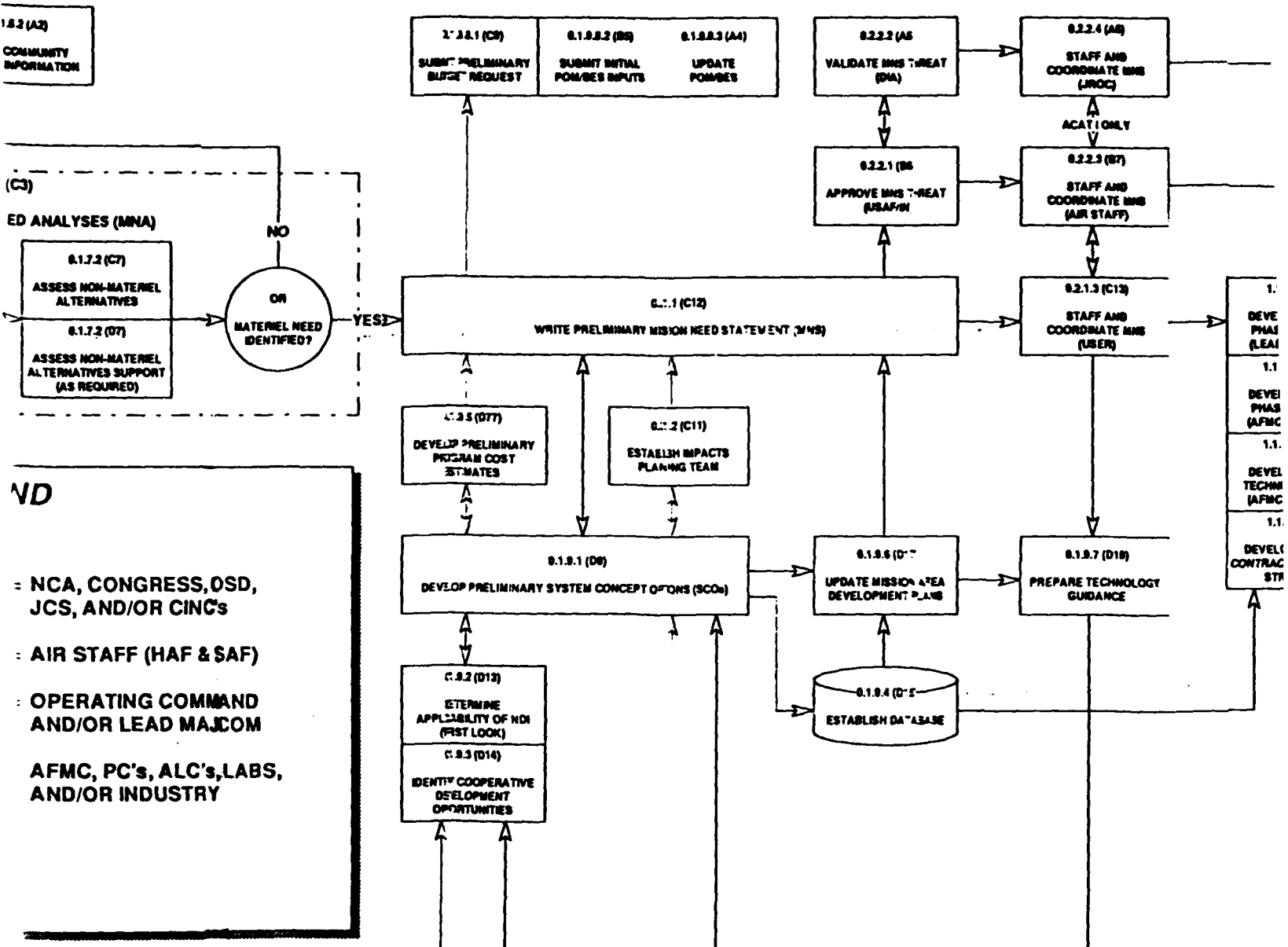
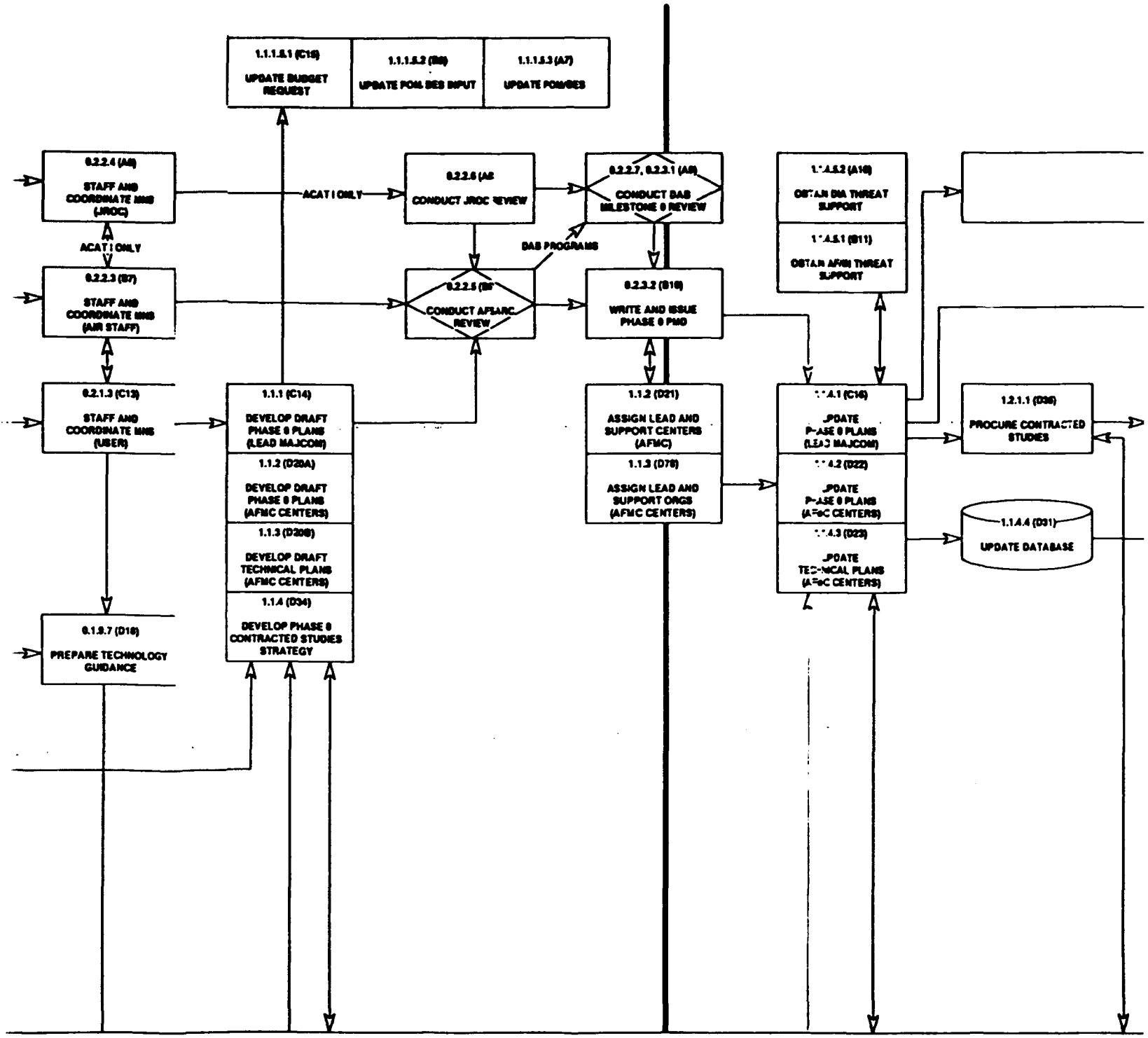
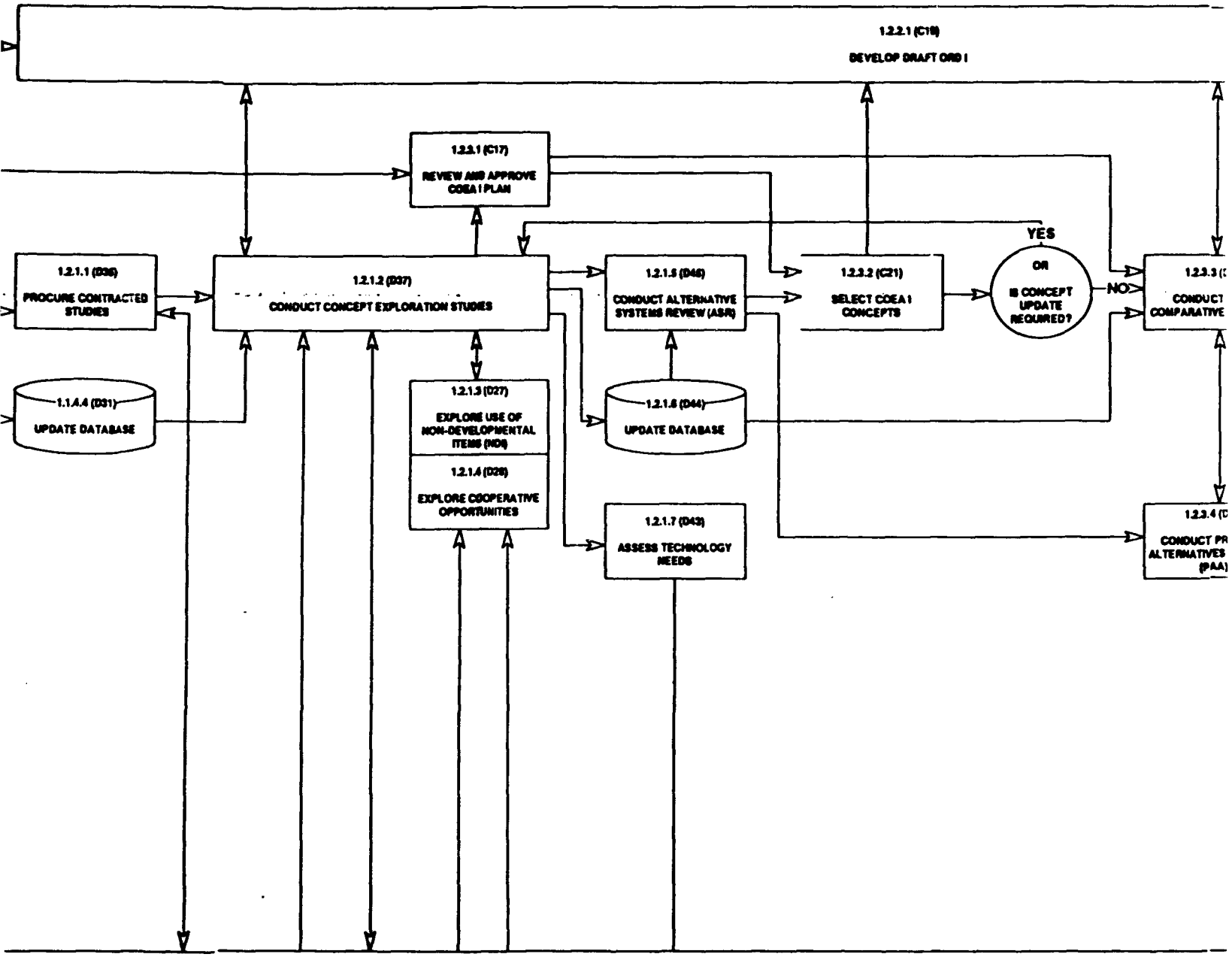
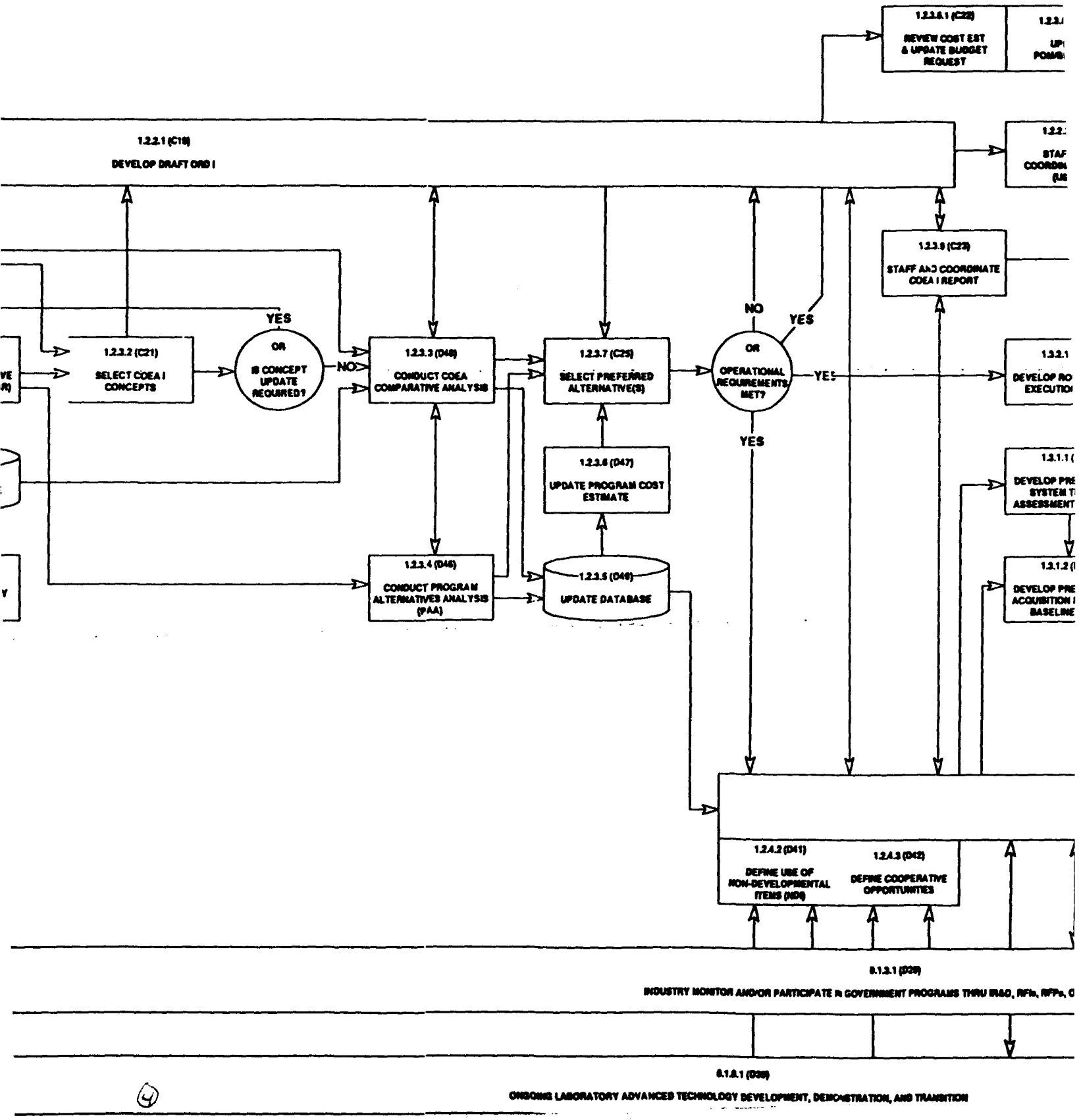
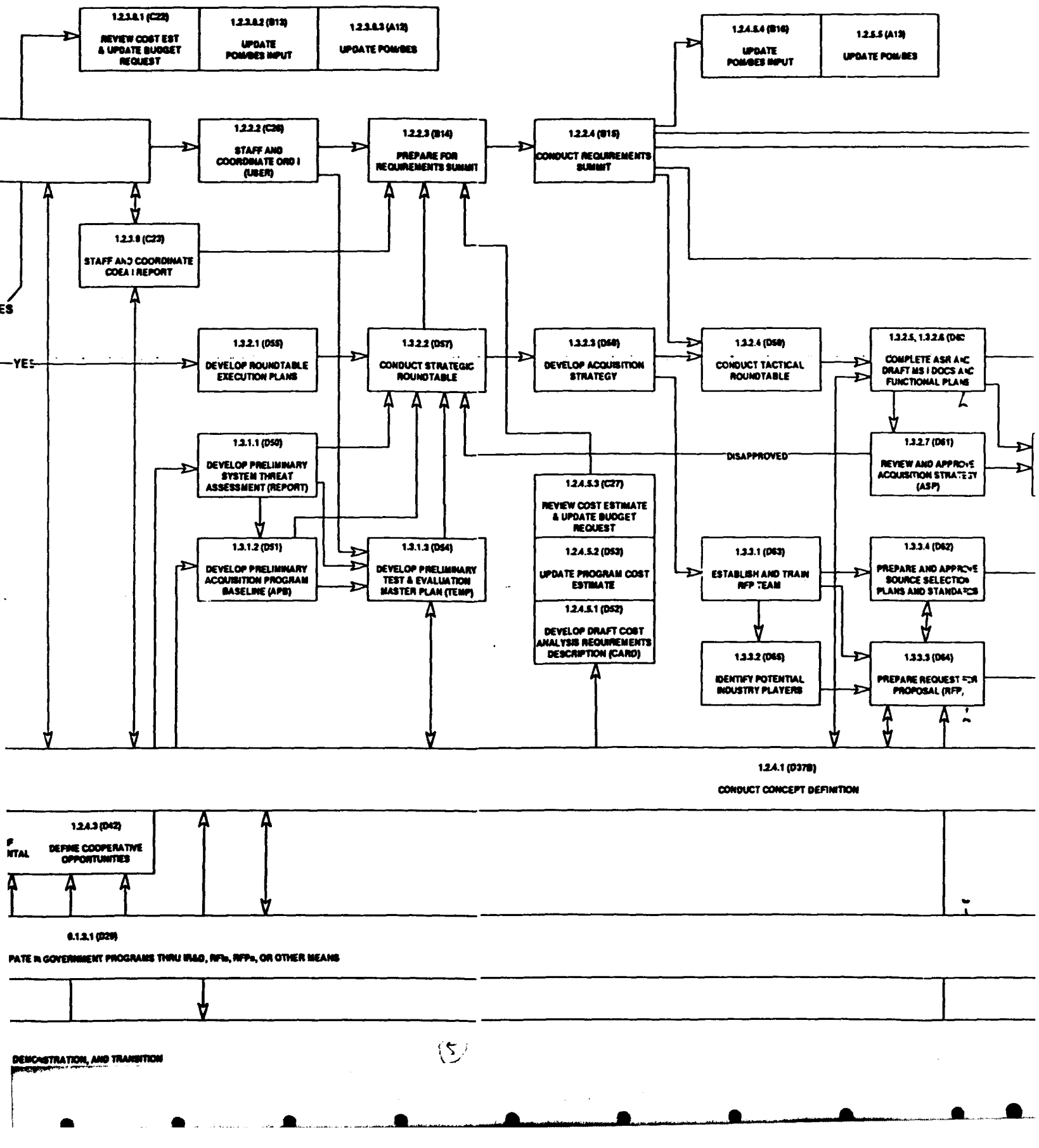
ELOPMENT PROCESS (PDP)

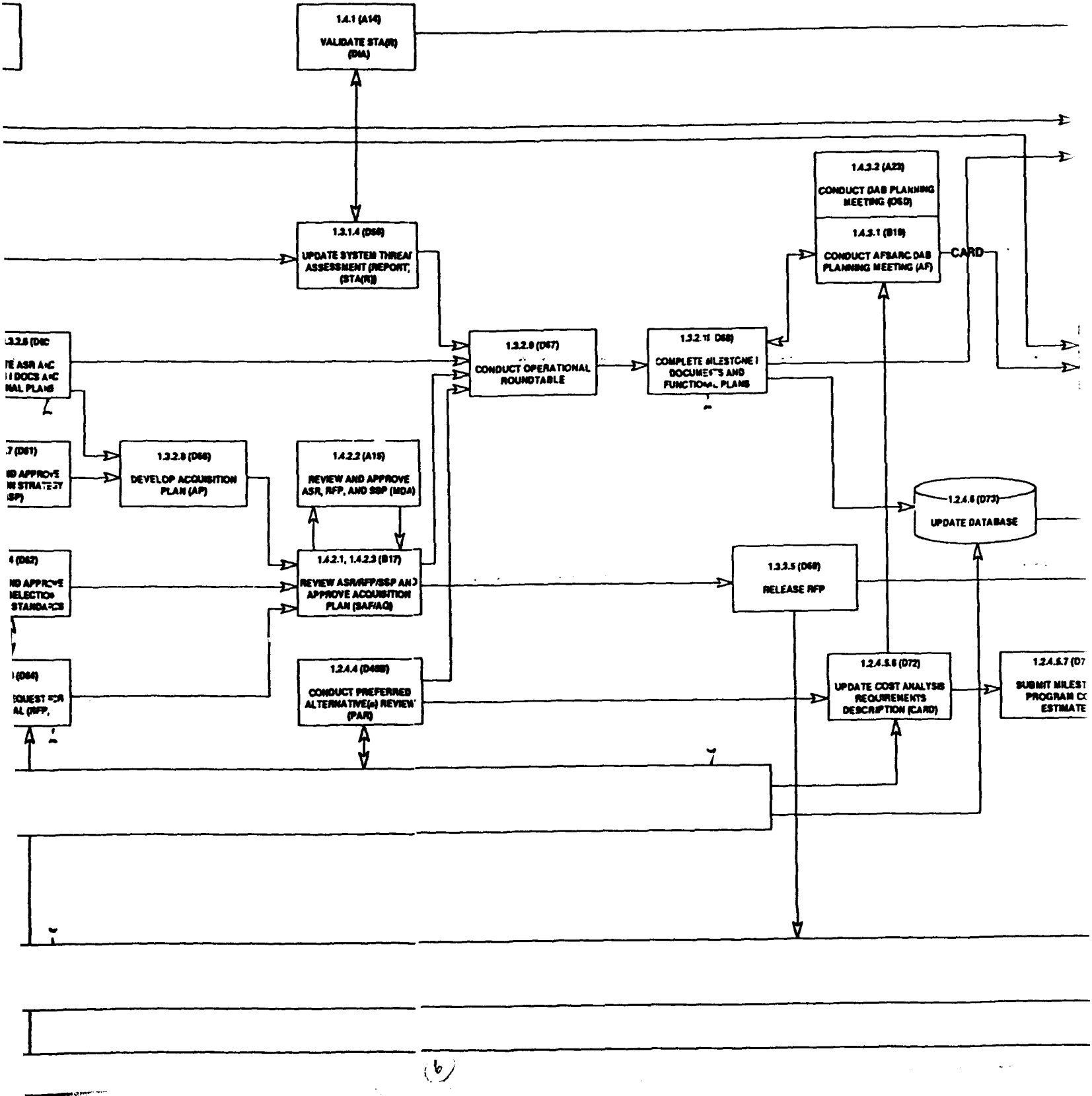



1.1.1.5.1 (C15)
UPDATE BUDGET REQUEST
1.1.1.5.2 (B9)
UPDATE POM/BES INPUT
1.1.1.5.3 (A7)
UPDATE POM/BES
0.2.2.4 (A8)
STAFF AND COORDINATE IMS (JROC)
ACAT I ONLY
0.2.2.6 (A6
CONDUCT JROC REVIEW
0.2.2.7, 0.2.3.1 (A9)
CONDUCT DAB MILESTONE 0 REVIEW
1.1.4.5.2 (A10)
OBTAIN DIA THREAT SUPPORT
1.1.4.5.1 (B11)
OBTAIN AFIN THREAT SUPPORT
ACAT I ONLY
DAB PROGRAMS
0.2.2.3 (B7)
STAFF AND COORDINATE IMS (AIR STAFF)
0.2.2.5 (B8
CONDUCT AFSARC REVIEW
0.2.3.2 (B10)
WRITE AND ISSUE PHASE 0 PMD
0.2.1.3 (C13)
STAFF AND COORDINATE IMS (USER)
1.1.1 (C14)
DEVELOP DRAFT PHASE 0 PLANS (LEAD MAJCOM)
1.1.2 (D20A)
DEVELOP DRAFT PHASE 0 PLANS (AFMC CENTERS)
1.1.3 (D20B)
DEVELOP DRAFT TECHNICAL PLANS (AFMC CENTERS)
1.1.4 (D34)
DEVELOP PHASE 0 CONTRACTED STUDIES STRATEGY
1.1.2 (D21)
ASSIGN LEAD AND SUPPORT CENTERS (AFMC)
1.1.3 (D76)
ASSIGN LEAD AND SUPPORT ORGS (AFMC CENTERS)
1.1.4.1 (C16)
UPDATE PHASE 0 PLANS (LEAD MAJCOM)
1.1.4.2 (D22)
UPDATE PHASE 0 PLANS (AFMC CENTERS)
1.1.4.3 (D23)
UPDATE TECHNICAL PLANS (AFMC CENTERS)
1.2.1.1 (D36)
PROCURE CONTRACTED STUDIES
1.1.4.4 (D31)
UPDATE DATABASE
0.1.9.7 (D18)
PREPARE TECHNOLOGY GUIDANCE

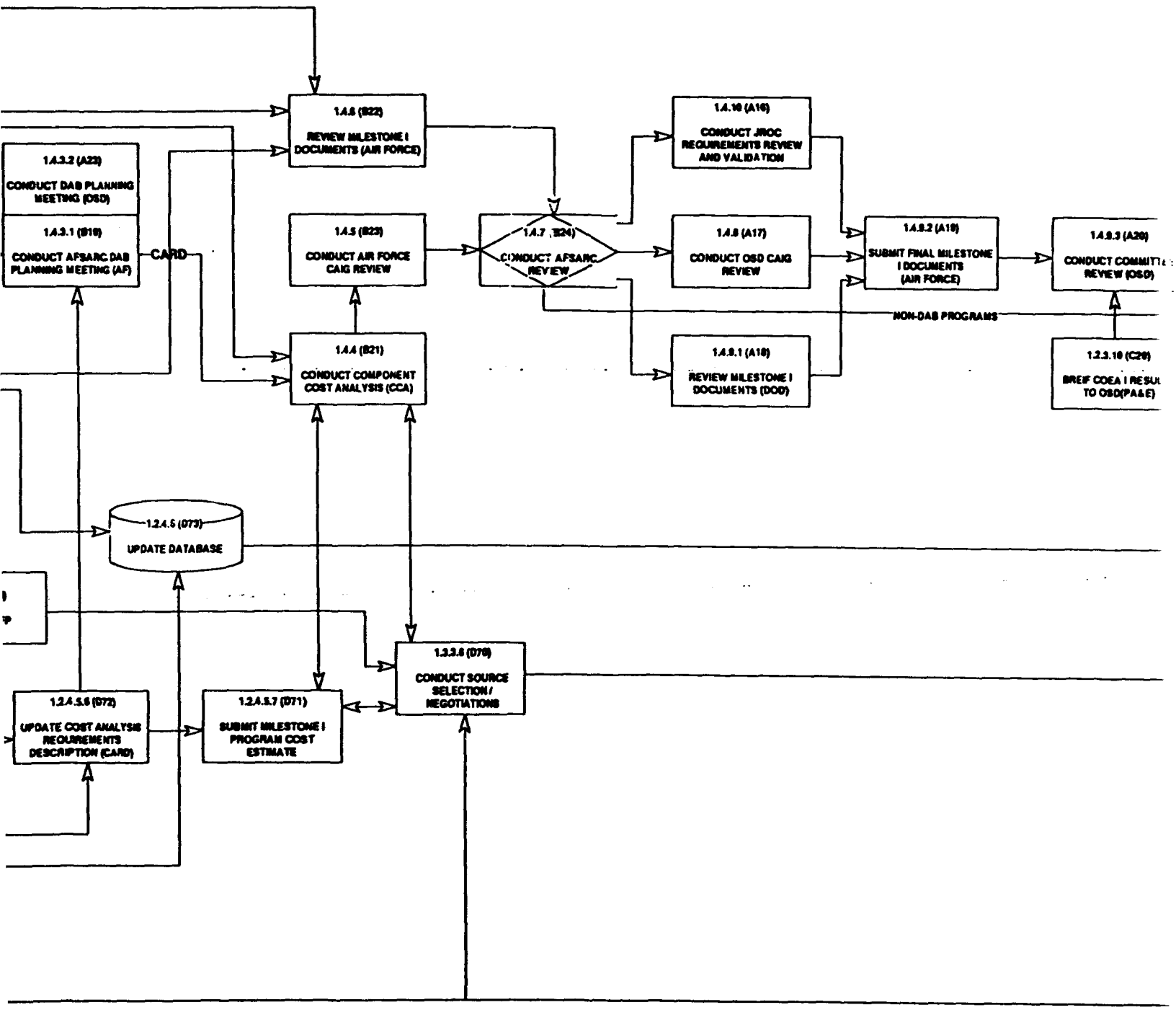

1.2.2.1 (C19)
DEVELOP DRAFT ORD I
1.2.3.1 (C17)
REVIEW AND APPROVE COEA I PLAN
1.2.1.1 (D36)
PROCURE CONTRACTED STUDIES
1.2.1.2 (D37)
CONDUCT CONCEPT EXPLORATION STUDIES
1.2.1.5 (D46)
CONDUCT ALTERNATIVE SYSTEMS REVIEW (ASR)
1.2.3.2 (C21)
SELECT COEA I CONCEPTS
YES
OR
IS CONCEPT UPDATE REQUIRED?
NO
1.2.3.3 (C
CONDUCT COMPARATIVE
1.1.4.4 (D31)
UPDATE DATABASE
1.2.1.3 (D27)
EXPLORE USE OF NON-DEVELOPMENTAL ITEMS (NDI)
1.2.1.4 (D28)
EXPLORE COOPERATIVE OPPORTUNITIES
1.2.1.6 (D44)
UPDATE DATABASE
1.2.1.7 (D43)
ASSESS TECHNOLOGY NEEDS
1.2.3.4 (C
CONDUCT PR ALTERNATIVES (PAA)

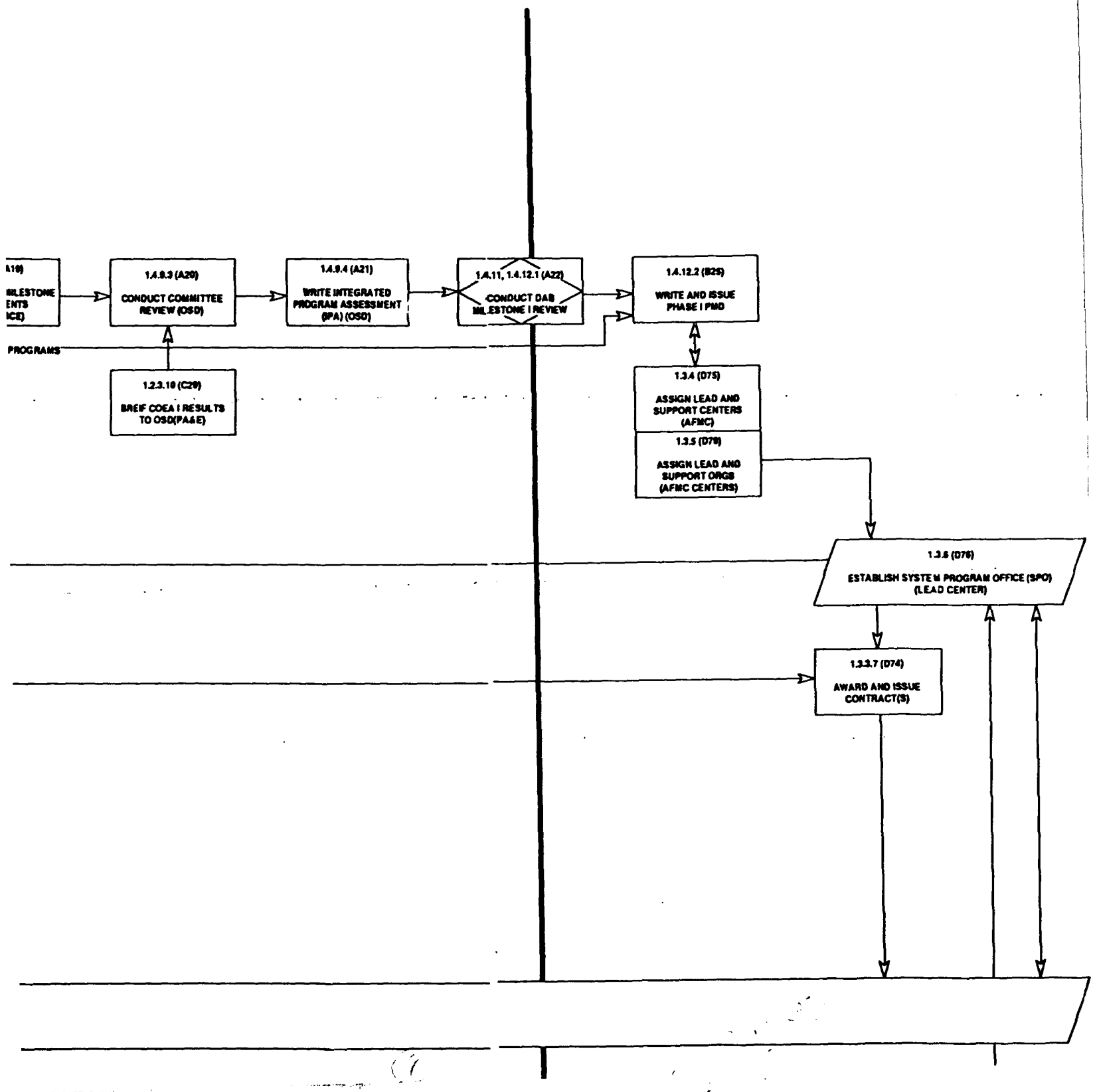

1.2.3.8.1 (C22)
REVIEW COST EST & UPDATE BUDGET REQUEST
1.2.2.1 (C18)
DEVELOP DRAFT ORD I
1.2.3.9 (C23)
STAFF AND COORDINATE COEA I REPORT
1.2.3.2 (C21)
SELECT COEA I CONCEPTS
YES
OR
IS CONCEPT UPDATE REQUIRED?
NO
1.2.3.3 (D46)
CONDUCT COEA COMPARATIVE ANALYSIS
1.2.3.7 (C25)
SELECT PREFERRED ALTERNATIVE(S)
NO
YES
OR
OPERATIONAL REQUIREMENTS MET?
YES
YES
1.2.3.6 (D47)
UPDATE PROGRAM COST ESTIMATE
1.2.3.4 (D46)
CONDUCT PROGRAM ALTERNATIVES ANALYSIS (PAA)
1.2.3.5 (D49)
UPDATE DATABASE
1.2.4.2 (D41)
DEFINE USE OF NON-DEVELOPMENTAL ITEMS (NDI)
1.2.4.3 (D42)
DEFINE COOPERATIVE OPPORTUNITIES
8.1.3.1 (D39)
INDUSTRY MONITOR AND/OR PARTICIPATE in GOVERNMENT PROGRAMS THRU IR&D, RFIs, RFPs, C
8.1.8.1 (D38)
ONGOING LABORATORY ADVANCED TECHNOLOGY DEVELOPMENT, DEMONSTRATION, AND TRANSITION

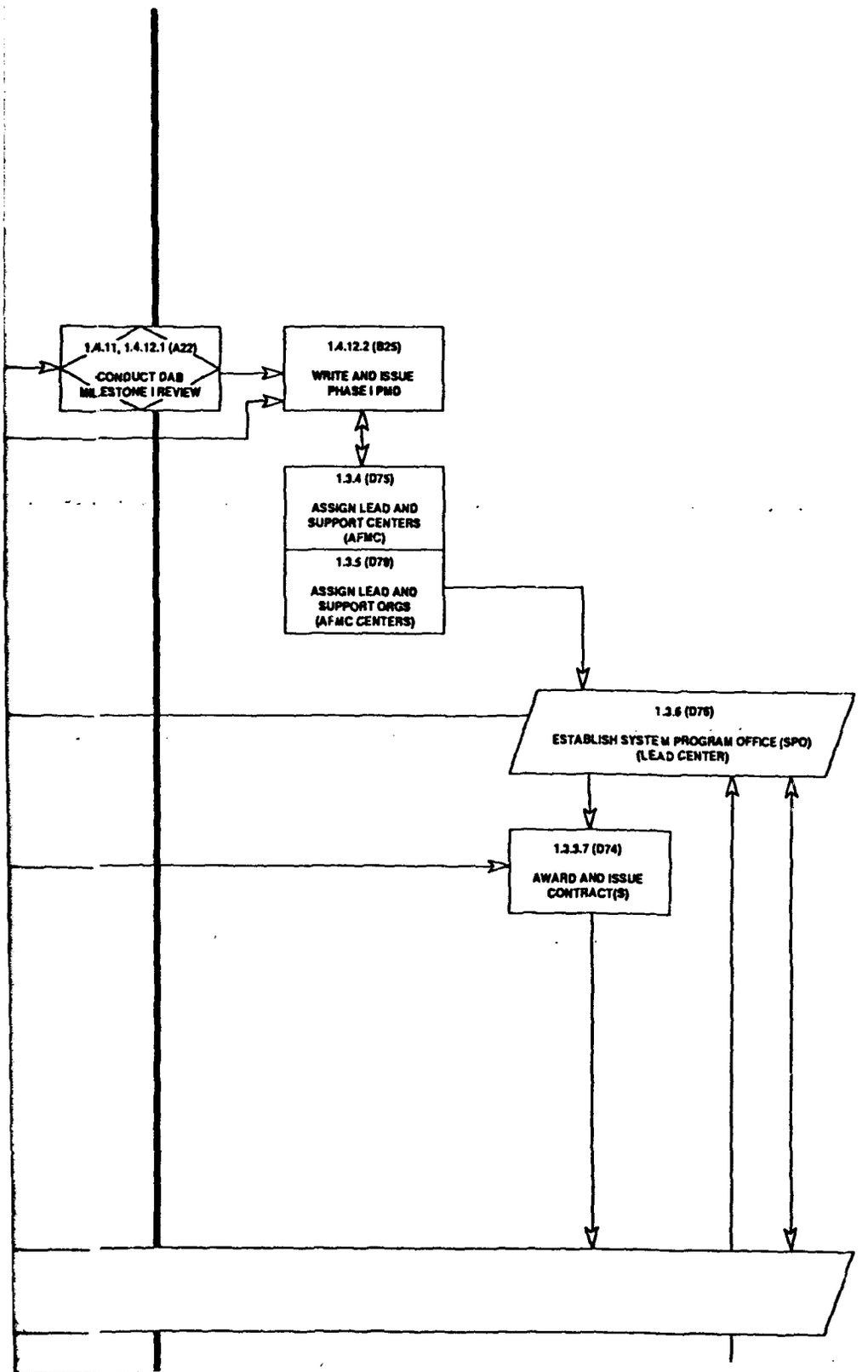

1.2.3.8.1 (C22)
REVIEW COST EST & UPDATE BUDGET REQUEST
1.2.3.8.2 (B13)
UPDATE POM/BES INPUT
1.2.3.8.3 (A12)
UPDATE POM/BES
1.2.4.5.4 (B16)
UPDATE POM/BES INPUT
1.2.5.5 (A13)
UPDATE POM/BES
1.2.2.2 (C26)
STAFF AND COORDINATE ORD I (USER)
1.2.2.3 (B14)
PREPARE FOR REQUIREMENTS SUMMIT
1.2.2.4 (B15)
CONDUCT REQUIREMENTS SUMMIT
1.2.3.8 (C23)
STAFF AND COORDINATE COEA I REPORT
YES
1.3.2.1 (D55)
DEVELOP ROUNDTABLE EXECUTION PLANS
1.3.2.2 (D57)
CONDUCT STRATEGIC ROUNDTABLE
1.3.2.3 (D58)
DEVELOP ACQUISITION STRATEGY
1.3.2.4 (D59)
CONDUCT TACTICAL ROUNDTABLE
1.3.2.5, 1.3.2.6 (D60
COMPLETE ASR AND DRAFT MS I DOCS AND FUNCTIONAL PLANS
1.3.1.1 (D50)
DEVELOP PRELIMINARY SYSTEM THREAT ASSESSMENT (REPORT)
DISAPPROVED
1.3.2.7 (D61)
REVIEW AND APPROVE ACQUISITION STRATEGY (ASP)
1.2.4.5.3 (C27)
REVIEW COST ESTIMATE & UPDATE BUDGET REQUEST
1.2.4.5.2 (D53)
UPDATE PROGRAM COST ESTIMATE
1.2.4.5.1 (D52)
DEVELOP DRAFT COST ANALYSIS REQUIREMENTS DESCRIPTION (CARD)
1.3.1.2 (D51)
DEVELOP PRELIMINARY ACQUISITION PROGRAM BASELINE (APB)
1.3.1.3 (D54)
DEVELOP PRELIMINARY TEST & EVALUATION MASTER PLAN (TEMP)
1.3.3.1 (D63)
ESTABLISH AND TRAIN RFP TEAM
1.3.3.4 (D62)
PREPARE AND APPROVE SOURCE SELECTION PLANS AND STANDARDS
1.3.3.2 (D65)
IDENTIFY POTENTIAL INDUSTRY PLAYERS
1.3.3.3 (D64)
PREPARE REQUEST FOR PROPOSAL (RFP)
1.2.4.1 (D37B)
CONDUCT CONCEPT DEFINITION
1.2.4.3 (D42)
DEFINE COOPERATIVE OPPORTUNITIES
6.1.3.1 (D29)
PATE IN GOVERNMENT PROGRAMS THRU IR&D, RFIs, RFPs, OR OTHER MEANS
DEMONSTRATION, AND TRANSITION


1.4.1 (A14)
VALIDATE STA(R) (DIA)
1.4.3.2 (A23)
CONDUCT DAB PLANNING MEETING (D60)
1.4.3.1 (B19)
CONDUCT AFSARC DAB PLANNING MEETING (AF)
CARD
1.3.1.4 (D66)
UPDATE SYSTEM THREAT ASSESSMENT (REPORT, (STA(R))
1.3.2.9 (D67)
CONDUCT OPERATIONAL ROUNDTABLE
1.3.2.11 D68)
COMPLETE MILESTONE I DOCUMENTS AND FUNCTIONAL PLANS
1.3.2.8 (D66)
DEVELOP ACQUISITION PLAN (AP)
1.4.2.2 (A15)
REVIEW AND APPROVE ASR, RFP, AND SSP (MDA)
1.2.4.6 (D73)
UPDATE DATABASE
1.4.2.1, 1.4.2.3 (B17)
REVIEW ASR/RFP/SSP AND APPROVE ACQUISITION PLAN (SAF/AQ)
1.3.3.5 (D69)
RELEASE RFP
1.2.4.4 (D46B)
CONDUCT PREFERRED ALTERNATIVE(s) REVIEW (PAR)
1.2.4.5.6 (D72)
UPDATE COST ANALYSIS REQUIREMENTS DESCRIPTION (CARD)
1.2.4.5.7 (D7
SUBMIT MILEST PROGRAM C ESTIMATE

(b)


1.4.6 (822)
REVIEW MILESTONE I DOCUMENTS (AIR FORCE)
1.4.10 (A16)
CONDUCT JROC REQUIREMENTS REVIEW AND VALIDATION
1.4.3.2 (A22)
CONDUCT DAB PLANNING MEETING (OSD)
1.4.3.1 (816)
CONDUCT AFSARC DAB PLANNING MEETING (AF)
CARD
1.4.5 (823)
CONDUCT AIR FORCE CAIG REVIEW
1.4.7 (824)
CONDUCT AFSARC REVIEW
1.4.8 (A17)
CONDUCT OSD CAIG REVIEW
1.4.9.2 (A19)
SUBMIT FINAL MILESTONE I DOCUMENTS (AIR FORCE)
1.4.9.3 (A20)
CONDUCT COMMITT REVIEW (OSD)
NON-DAB PROGRAMS
1.4.4 (821)
CONDUCT COMPONENT COST ANALYSIS (CCA)
1.4.9.1 (A18)
REVIEW MILESTONE I DOCUMENTS (DOD)
1.2.3.10 (C29)
BRIEF COEA I RESU TO OSD(PA&E)
1.2.4.5 (073)
UPDATE DATABASE
1.3.3.6 (076)
CONDUCT SOURCE SELECTION / NEGOTIATIONS
1.2.4.5.6 (072)
UPDATE COST ANALYSIS REQUIREMENTS DESCRIPTION (CARD)
1.2.4.5.7 (071)
SUBMIT MILESTONE I PROGRAM COST ESTIMATE


MILESTONE
ENTS
ICE)
1.4.9.3 (A20)
CONDUCT COMMITTEE REVIEW (OSD)
1.4.9.4 (A21)
WRITE INTEGRATED PROGRAM ASSESSMENT (IPA) (OSD)
1.4.11, 1.4.12.1 (A22)
CONDUCT DAB MILESTONE I REVIEW
1.4.12.2 (B25)
WRITE AND ISSUE PHASE I PMD
PROGRAMS
1.2.3.10 (C29)
BREIF COEA I RESULTS TO OSD(PA&E)
1.3.4 (D75)
ASSIGN LEAD AND SUPPORT CENTERS (AFMC)
1.3.5 (D76)
ASSIGN LEAD AND SUPPORT ORGS (AFMC CENTERS)
1.3.6 (D76)
ESTABLISH SYSTEM PROGRAM OFFICE (SPO) (LEAD CENTER)
1.3.3.7 (D74)
AWARD AND ISSUE CONTRACT(S)


1.4.11, 1.4.12.1 (A22)
CONDUCT DAB MILESTONE I REVIEW
1.4.12.2 (B25)
WRITE AND ISSUE PHASE I PMD
1.3.4 (D75)
ASSIGN LEAD AND SUPPORT CENTERS (AFMC)
1.3.5 (D79)
ASSIGN LEAD AND SUPPORT ORGS (AFMC CENTERS)
1.3.6 (D76)
ESTABLISH SYSTEM PROGRAM OFFICE (SPO) (LEAD CENTER)
1.3.3.7 (D74)
AWARD AND ISSUE CONTRACT(S)